U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-262 224

Water Quality Instructional Resources Information System Volume I. Users Manual

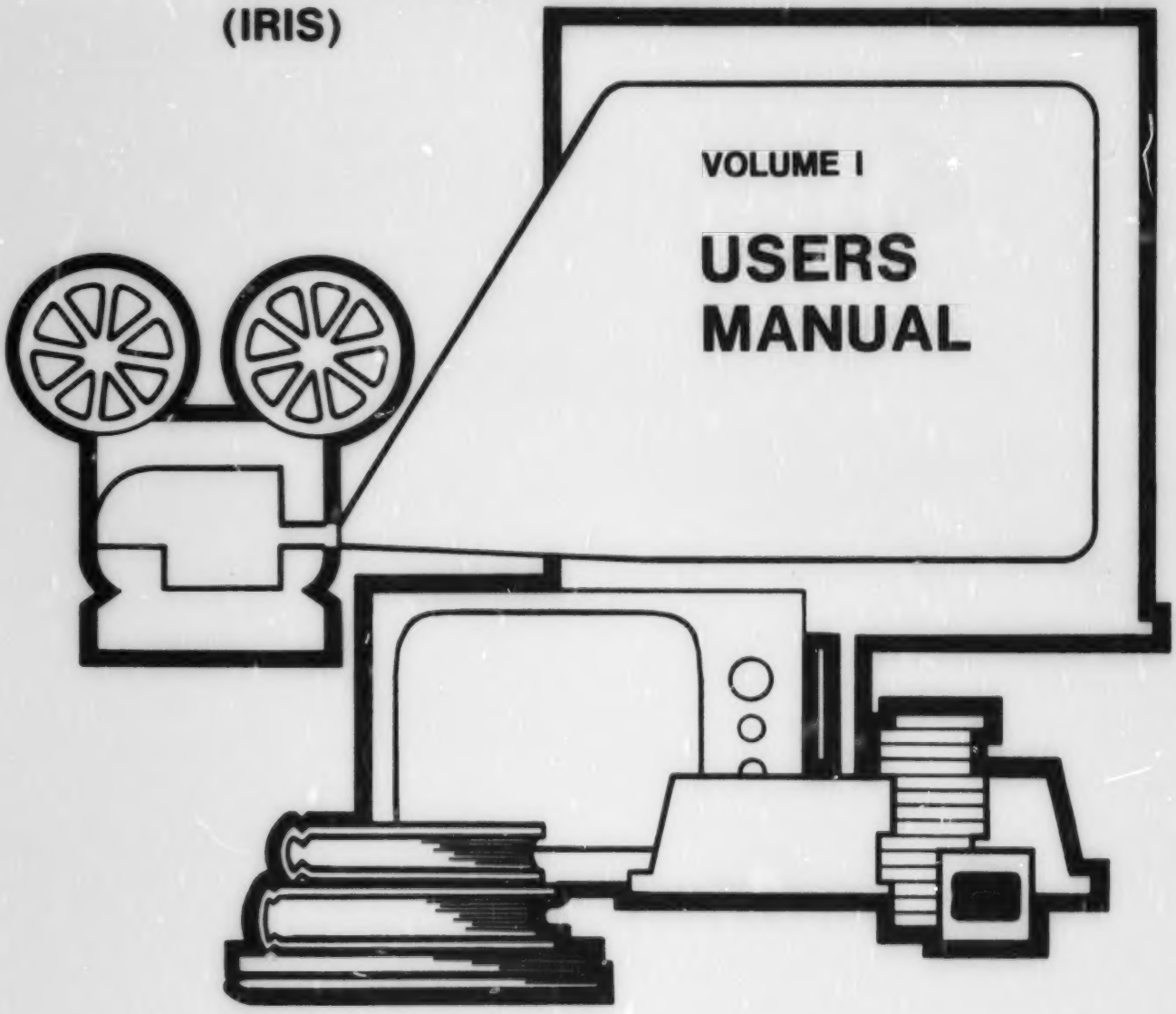
National Training & Operational Technology Ctr, Cincinnati, Ohio

Sep 76

014009
EPA-430/1-76-011

PB 262 224

WATER QUALITY INSTRUCTIONAL RESOURCES INFORMATION SYSTEM (IRIS)



U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF WATER PROGRAM OPERATIONS
MUNICIPAL OPERATIONS AND TRAINING DIVISION

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TYPE OF INFORMATION AVAILABLE AND LOCATION

ITEM	INFORMATION AVAILABLE													WHERE FOUND	
	Title	ID	Auth.	Source	Type	Category	Subject	Level	Copyright	Cost	Pub. Date	Remarks	Abs.	Volume	Microfiche
TITLE MASTER REPORT	SORT ELEMENT	x	x	x	x	x	x	x	x	x	x	x	x		x
ID MASTER REPORT	x		x	x	x	x	x	x	x	x	x	x	x	3	x
AUTHOR INDEX	x	x			x	x		x			x				x
SOURCE INDEX	x	x	x		x	x		x			x				x
TYPE INDEX	x	x	x			x		x			x				x
CATEGORY INDEX	x	x	x		x			x			x				x
SUBJECT INDEX	x	x	x		x	x		x			x			4	x
THESAURUS TABLE							x							2	
SOURCE NAME TABLE				x										2	
SOURCE CODE TABLE				x										2	

BIBLIOGRAPHIC DATA SHEET	1. Report No. EPA-430/1-76-011	2.	3. Recipient's Accession No.
4. Title and Subtitle Water Quality Instructional Resources Information System Volume I Users Manual			5. Report Date 09/76 date of issue 6.
7. Author(s) EPA			8. Performing Organization Rept. No.
9. Performing Organization Name and Address U.S. Environmental Protection Agency, OWPO MOTD, National Training & Operational Technology Center Cincinnati, OH 45268			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12 Sponsoring Organization Name and Address Same as #9 above.			13. Type of Report & Period Covered Final 14.

15. Supplementary Notes

Volume I of a four volume set.

16. Abstracts

This system contains approximately 2,000 references to materials available for use in education and training programs related to water quality. Entries are catalogued with all typical library reference information. Special classifications have been added to define training applications. Materials can be selected based on subject area, educational level, type of training and type of material (i.e., film, printed, audio tape, slides, etc.) Each entry also contains an abstract, source and cost. The Users Manual is designed to prepare potential users to obtain a complete reference for any item in the system. Instructions to enter references into the system and to obtain a selective bibliographic search are included.

17. Key Words and Document Analysis. 17a. Descriptors

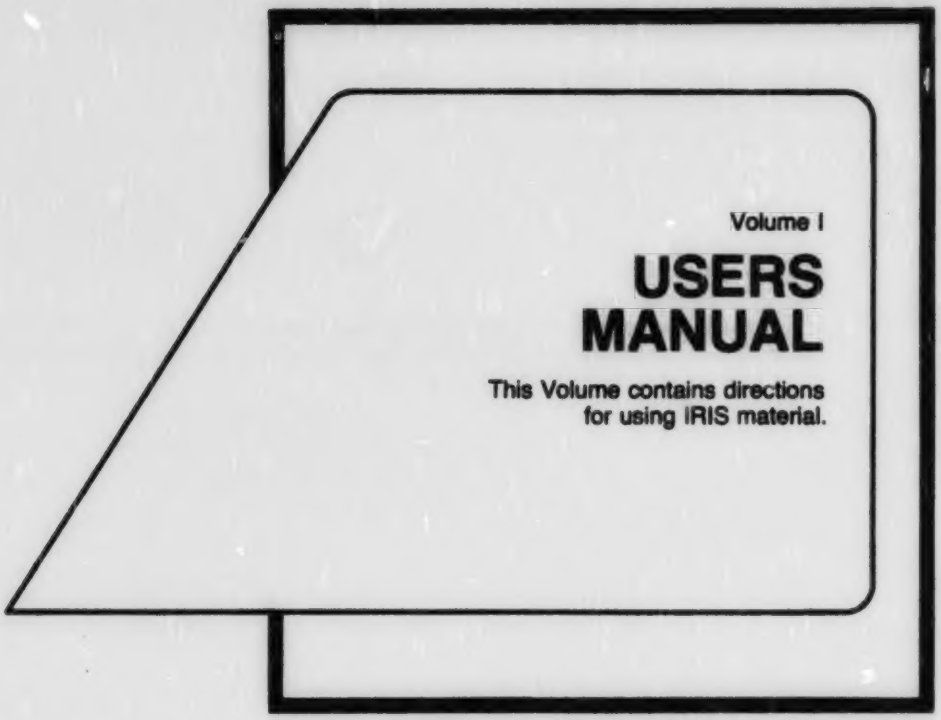
Abstracting, automatic indexing, Bibliographies, books, cataloging, classifications, data retrieval, data storage, document acquisition, indexes (documentation), information centers, information retrieval, information systems, subject indexing, technical reports, thesauri

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Release to public	UNCLASSIFIED	99
	20. Security Class (This Page) UNCLASSIFIED	22. Price 5.00

WATER QUALITY INSTRUCTIONAL RESOURCES INFORMATION SYSTEM (IRIS)



Volume I

USERS MANUAL

This Volume contains directions for using IRIS material.

Funded by
U. S. Environmental Protection Agency
Municipal Operations and Training Division
Manpower Planning and Training Branch

Developed by
Charles County Community College
La Plata, Maryland

Environmental Systems Engineering
Clemson University
Clemson, South Carolina

Sigma Data Computing Corp.
Rockville, Maryland

SEPTEMBER 1976

The mention of trade names or commercial products in this manual is for illustration purposes, and does not constitute endorsement or recommendation for use by the Environmental Protection Agency.

For Information

ON MANPOWER PLANNING AND TRAINING-INSTRUCTIONAL RESOURCES	JOSEPH BAHNICK, Chief Manpower, Planning and Training Branch MOTD/OWPO U S Environmental Protection Agency Washington, DC 20460 202-426-7887
ON SPECIAL SEARCHES	HAROLD L. JETER, Director National Training Center MOTD/OWPO U S Environmental Protection Agency Cincinnati, OH 45268 513-684-7501
ON APPLICATION OF INSTRUCTIONAL RESOURCES	CARL SCHWING, Executive Director Middle Atlantic Applied Technology Institute Charles County Community College La Plata, MD 20646 301-934-2251
ON COMPUTER SOFTWARE AND HARDWARE	LES NEEDLE Sigma Data Computing Corporation 12730 Twinbrook Parkway Rockville, MD 20852 301-881-4451
ON INPUT OF INSTRUCTIONAL MATERIALS INTO SYSTEM	JOHN H. AUSTIN, Professor and Head Environmental Systems Engineering Clemson University Clemson, SC 29631 803-656-3276

Table of Contents

Page

PREFACE vi
ACKNOWLEDGMENTS vii
OBJECTIVES OF IRIS. 1
POTENTIAL USERS OF MANUAL 2
OVERVIEW. 4
History. 4
Design Philosophy. 5
Product Summary. 6
IRIS PRODUCTS 7
Categories and Their Relationships 7
Product Definition and Samples 12
Title Master Report Description 12
Identification Number Master Report 14
Author Index. 16
Source Index. 18
Type Index. 20
Category Index. 22
Subject Index 24
Thesaurus 26
Source Code Table 28
Source Name Table 30
USING IRIS PRODUCTS 32
Representative Use of *Source Index* 32
Representative Use of *Category Index* 37
Representative Use of *Type Index* 41
Representative Use of *Author Index* 44
Representative Use of *Subject Index*. 47
SELECTIVE BIBLIOGRAPHIES. 53
Definitions and Conditions 53
Completing a Selective Bibliography Search Request Form. . . 54
Search Request Form for Selective Bibliography 57
Sample Requests. 60
ENTERING INSTRUCTIONAL RESOURCES INTO IRIS. 70
Definitions. 70
Coding Instructions. 70
General Instructions 70
Instructions for Completion of Coding Sheet. 71
Master File Format 76
Correcting an Existing IRIS Record 79
COMPUTER ENVIRONMENT. 82
Computer Hardware and Software 82
Data Processing Approach 82
GLOSSARY. 84
MICROFICHE PACKET . . . . . back cover

Preceding page blank

Preface

For several decades members of the water quality control profession have been developing instructional materials to be used in training sequences, short courses, workshops, and degree granting programs. From time to time various professional or governmental organizations, educational institutions, and journals have developed listings of films, manuals, textbooks, etc. However, a comprehensive listing has not been available, much less a system where a person could search out a particular instructional resource by author, source, subject matter, or type of instructional material.

This manual describes a procedure where instructors in the water quality control field can locate instructional materials to meet very general or highly specific requirements in their programs.

Not only will the procedures described help instructors and students find instructional materials for their needs, but it will help developers decide what new materials should be developed for use in the profession.

This manual is one in a series of four volumes available from EPA's National Training Center in Cincinnati, Ohio. The volumes in this series are:

Volume I	*Users Manual*
Volume II	*IRIS Tables*
Volume III	*Identification Number Master Report*
Volume IV	*Subject Index*

Acknowledgments

This project was initiated in a grant to Charles County Community College under the direction of Carl M. Schwing. The first listing of available instructional materials was published in *Instructional Materials Available* and was compiled by John H. Austin and Jane Klosky. As the scope of the listing was expanded, computer information and systems support design were provided by Lester Needle and Barbara Taylor of Sigma Data Computing Corp. Aldora Keller provided support in reviewing materials to be entered into the system. EPA project control and support were provided by staff personnel under the direction of Joseph Bahnick and Harold L. Jeter.

Objectives of IRIS

The purpose of this manual is to assist you in learning the basic philosophy used in the development of the Instructional Resources Information System (IRIS) for Water Quality. You will be able to name and use the various products available from IRIS, to recover information from IRIS in a variety of formats for various purposes, and to enter *Instructional Resources** into IRIS. When you complete your study of this manual, you should be able to:

1. Define IRIS.

2. Obtain a complete reference for any item in IRIS, given its title or ID number.

3. Obtain references given any combination of the following:
   a. subject
   b. author
   c. source
   d. category
   e. type of material
   f. educational level
   g. cost
   h. date

4. Enter a reference into IRIS, given any item of instructional material with necessary information.

5. Determine if an instructional resource is in IRIS that is similar to a proposed instructional material development project.

6. Fill out a selective bibliography search request form.

7. Name the computer *Hardware* required to service the system.

8. Name the *Software* packages required to implement IRIS.

*Words in script are defined in the glossary on pages 84 to 89. You should consult the glossary to be sure you are using the word as defined for this *Users Manual*.

Potential Users of Manual

This manual has been developed with a number of different kinds of *users* in mind, and your study and use of it should take this into consideration. Table 1 (page 3) suggests which sections you should read depending on your potential use of the manual. In other words, if your interest is restricted to any of the uses suggested in the table, then you need to study only the indicated sections.

Information for the following users is given:

1. Instructor desiring knowledge of instructional materials.

2. Instructor, author, or publisher desiring to enter new instructional material into system.

3. Developer, author, publisher, or funding agency desiring information on existence of material on a particular subject.

4. Instructor, educational institution, or governmental agency desiring *Selective Bibliography*.

5. Computer systems specialist desiring information on *System* for background information or installing in his organization.

6. Busy administrator who needs a quick review of manual and its significance to his organization.

This manual should acquaint you well enough with IRIS that you could carry out any of the above after study of the manual.

TABLE 1

SECTIONS TO BE READ BY DIFFERENT USERS

USER	SECTIONS TO READ	PAGES
1. Person wanting instructional materials.	IRIS Products	7-52
2. Person wanting to enter new item into system.	Entering items into IRIS	71-81
3. Person wanting to verify existence of item in system on particular subject area.	IRIS Products Selective Bibliographies	7-52 53-70
4. Person desiring a special search.	IRIS Products Selective Bibliographies	7-52 53-70
5. Person wanting information on computer software and hardware.	Overview Computer Environment	4-6 82-83
6. Person needing quick review of what IRIS is.	Overview	4-6

Overview

HISTORY

In the fall of 1973 Charles County Community College received a grant from EPA to review and tabulate audio-visual equipment and instructional materials in use in the water quality control field. This project, under the direction of Carl Schwing, Chairman of the Pollution Abatement Technology Program at Charles County (with the assistance of Walter J. Bojsza, Audio-Visual Coordinator), was carried out in cooperation with the following EPA representatives:

Joseph Bahnick, Acting Chief, Direct Technical Training,
Manpower Development Staff, OWPO/EPA

Kenneth M. Hay, Education Specialist, Direct Technical Training,
Manpower Development Staff, OWPO/EPA

Harold L. Jeter, Director, National Training Center,
Manpower Development Staff, EPA

Two volumes were published summarizing the findings:

Volume	Title
I	*Audio-Visual Equipment on Hand*
II	*Instructional Materials Available*

Additionally, the following people assisted:

John H. Austin, Professor and Head, Environmental Systems
Engineering, Clemson University, Clemson, SC

W. Harry Durham, Director, University Communications Center,
Clemson University, Clemson, SC

Robert A. Gearheart, Division of Environmental Engineering,
Utah State University, Logan, UT

George H. Ziener, formerly Chief, Instructional Development
Section, Air Pollution Training Institute, EPA

As an initial step, organizations authoring or sponsoring *Instructional Materials* were contacted to verify and identify each item correctly. Additional entries were added where appropriate. By the fall of 1974 sufficient information was available to implement a computer based *Information System*.

In conjunction with several members of EPA's National Training Center

in Cincinnati, an initial review of existing retrieval applications indicated the library systems developed under the direction of Sarah Thomas Kadec could be adapted to training requirements. As the library systems had been developed and supported by staff from Sigma Data Computing Corp., two consultants (Lester Needle, Vice President; and Barbara Taylor, Senior Library Systems Analyst) joined the team. Thus, the team assembled were either EPA employees or consultants having strong system and information experience in the environmental areas. This factor was important to ensure that the system would be designed properly to meet the special requirements of environmental programs.

A comprehensive information application has been developed to meet the requirements of the Office of Water Program Operations. A significant reason for the rapid advancement in the design of the application was the adaptability of software and design techniques already supporting EPA's library system.

DESIGN PHILOSOPHY

The *Design Philosophy* of an automated information system should reflect the program area's perception of how the information will be collected, disseminated, and used. In the Instructional Resources Information System (IRIS), the system emphasizes:

User Independence - The system, through its *Information Products*, allows geographically dispersed users to have immediate and detailed access to instructional resources, independent of an *Information Center*. When necessary, professional support is available to the IRIS user.

User Education - Through interactive workshops, selected key personnel are given a comprehensive orientation to IRIS and its capabilities. These trained specialists are then in a position to assist others in intelligently using IRIS products.

Standardization of *Information System Approach* - Rather than attempting to develop an independent and different approach to information access, IRIS uses an existing, highly successful EPA-developed information system.

Instructional Material Selection - All instructional resources included in IRIS meet specific water quality control requirements. To guarantee currency, all sources of instructional material are contacted regularly for information concerning new instructional resources.

Instructional Material Categorization - Each instructional resource entering IRIS is categorized according to several highly specific information parameters (e.g., title, educational level, media type(s), subjects, etc.). Rigid control procedures are employed to ensure the accuracy of the information. As a result the information made available to the IRIS user represents an accurate, comprehensive, and consistent response to user needs.

Product Flexibility - IRIS provides the user with several avenues of information access (e.g., by title, author, source, subject, media type, application category, etc.). Likewise, IRIS uses two media types (hard copy and *Microfiche*) to assist its users. The central concept is to provide in a cost effective fashion the highest degree of Access to IRIS to the largest number of users.

SUMMARY OF INFORMATION PROVIDED BY IRIS

As each instructional resource must be defined and specifically categorized before inclusion in IRIS, the following information is gathered on each material:

- identification number
- title of the training material
- date of publication
- up to two authors
- up to two sources (i.e., locations where resource can be obtained)
- up to four type indicators (e.g., slides, cassettes, etc.)
- up to five categories (i.e., relevant application areas, such as design, operations, etc.)
- up to sixteen subjects
- educational level of material
- copyright indicator
- cost and indication of availability (e.g., free, purchased, rented)
- remarks
- abstract

Eleven basic products are provided. The first two, the *Identification Number Master Report* and the *Title Master Report* represent complete bibliographies providing all available information on each instructional resource. Five indexes support these master reports. Complete indexes by subject, author, *Source*, *Type*, and *Category* are provided. In each instance they contain sufficient information to allow for an initial selection of material satisfying a specific need without having to call a central information center for assistance. After selecting relevant material, the user can obtain the items from the designated source(s). To assist with the use of the indexes and reports, four tables are provided. These are the *Code Definition Table*, *Thesaurus*, *Source Code Table* and *Source Name Table*.

IRIS Products

CATEGORIES AND THEIR RELATIONSHIPS

One of the principal concepts of IRIS applications is supplying you with a set of information products that allow you to determine efficiently and directly the available training material that will satisfy a given need.

Table 2 (page 8) summarizes the IRIS products available to the user. The products fall under three major categories: *Reports*, *Indexes*, and *Tables*. These are discussed in detail below. Table 2 indicates the major features of each IRIS product, including the category of the material (i.e., report, index or table); the nature of the listing, or sort order (i.e., alphabetical by title); and the information available for each item (data elements).

The Categories

Reports. These products (*Title Master Report*, *Identification Number (ID) Master Report*) provide complete bibliographic information on each training material in IRIS. They will be examined by you in making a final judgment about whether the material meets your particular need.

Indexes. These products (*Subject*, *Type*, *Category*, *Author*, *Source*) do not provide complete bibliographic information on each training material. Rather, they provide key information (title, author, media type, date, category, and education level) to allow you to rapidly browse through training materials and make initial selections. To facilitate this browsing, each index is sorted differently. For example, the *Subject Index* allows you to determine what materials are available for a given subject, such as "Laboratory Skills."

Tables. These products *Code Definition*, *Thesaurus*, *Source Name*, *Source Code)* assist you in using the Indexes and Reports by providing definition for special codes used in IRIS.

The Relationship

Each product category provides the user with a vital link to IRIS. To properly interpret the information in the indexes and reports, you must use the tables. To quickly review materials, you must use the Indexes. To make a final materials selection, you must use the Reports.

Example - If you wanted to know what materials the American Water Works Association has entered into IRIS, you would

1. Use the *Source Name Table*, look up American Water Works Association and note that their code is AWWA.

TABLE 2

IRIS INFORMATION PRODUCT SPECIFICATIONS

PRODUCT NAME	CATEGORY	SORT ORDER	DATA ELEMENTS	LOCATION
Title Master Report	report	title (primary)	Title, author(s), source(s), type(s), categories, date, cost, purchase/rent code, copyright, educational level, ID, subject(s), remarks, abstract.	Microfiche
Identification Number Master Report	report	ID (primary)	ID, title, author(s), source(s), type(s), category(s), date, cost purchase/rent code, copyright, educational level, subject(s), remarks abstract.	Volume 3 and Microfiche
Author Index	index	author (primary) ID (secondary)	Author, ID, title, category(s), type(s), date, level.	Microfiche
Source Index	index	source (primary) ID (secondary)	Source, ID, title, category(s), type(s), date, level, author.	Microfiche
Type Index	index	type (primary) ID (secondary)	Type, ID, Title, category(s), date, level, author.	Microfiche
Category Index	index	category (primary) ID (secondary)	Category, ID, title, type(s), date, level, author.	Microfiche
*Subject Index	index	subject (primary) ID (secondary)	Subject, ID, title, category(s), type(s), date, level, author.	Volume 4 and Microfiche
Code Definition Table	table			Inside back cover of each volume
Thesaurus	table	subject (primary)	Subject, cross references, category definition.	Volume 2
Source Name Table	table	source name (primary)	Source name, source code, source address.	Volume 2
Source Code Table	table	source code (primary)	Source code, source name, source address.	Volume 2

*The Subject Index includes a cross reference facility (USE; SEE ALSO). Wherever possible, when a term is not a legitimate subject, a USE reference is given to direct the user to an appropriate term. Likewise, where other legitimate terms identify a similar concept, a SEE ALSO reference is given.

2. Use the *Source Index*, look up AWWA in its proper alphabetic position, and review all the materials listed for this source. If, perhaps the title "Disposal of Wastes from Water Treatment Plants" interested you, you would

3. Use the *Title Report* to review the complete bibliographic entry for this title, including a full abstract, cost information, a list of all pertinent subjects for this material, and so on. With this information, you could determine whether you wished to obtain the training material for your collection.

IRIS Bibliographic Record - What Does It Contain?

The most critical aspect of any information system, such as IRIS, is the determination of what information shall constitute the bibliographic record. This determination is highly dependent upon an understanding of the user population, in this case, instructors, developers of course material, and so on. How do they select training materials; how do they determine whether the material is adequate; are they concerned with education level; is an abstract required; will they be going directly to a publisher or distributing source to obtain the material? The result of this 'dissection process' is the construction of a bibliographic record, where each data element is exactingly defined. For example, in IRIS as many as 16 subjects can be assigned to one training material, up to two authors can be assigned; only one educational level is permissible; and so on. The next two pages define the data element structure supporting IRIS, along with an example.

Exhibit 1 (page 10) contains the complete print-out of one item as it appears in the *Title Master Report*. Each *Data Element* is identified by underlining, and notes are given to explain the *Bibliographic* element. The numbers next to each item in Exhibit 1 are explained in Table 3, *Code Definition Table*. For each number, the name of the items is given, a description of what this item is, and codes used (where applicable) for this item. The *Code Definition Table* has been placed inside the back cover of each volume of the IRIS series.

3→PRACTICAL GUIDE TO WATER QUALITY STUDIES OF STREAMS
4→DATE: 69-00
5→AUTHOR(S): KITTRELL F W
6→TYPE(S): PM
7→CATEGORIES: M T P
9→SOURCE(S): GPO EPA2
10→COST: 0.70 P→11
8→LEVEL: 2
1→ID NUMBER: EPAW00879 COPYRIGHT:←2

12 SUBJECT AREAS:

SURVEYS	STREAMS	DATA EVALUATION	PLANNING
OPERATIONS	WATER POLLUTION	WATER QUALITY	MANAGEMENT
TECHNICAL WRITING	SAMPLING	FLOW MEASUREMENT	

13→REMARKS AND SUMMARY:
GPO NUMBER 167.8:ST8. PAPERBACK. WHILE SUPPLY LASTS, NO CHARGE FROM EPA-2. 136 PAGES, 10 FIGURES.

14 INTENDED AS A BRIEF BUT COMPREHENSIVE TREATMENT OF THE SUBJECT FOR BEGINNERS AND TO ASSIST THOSE EXPERIENCED IN THE FIELD. COVERAGE INCLUDES SURVEY OBJECTIVES; PHYSICAL CHARACTERISTICS OF STREAMS; SAMPLING PROGRAMS INCLUDING SITE SELECTION, PROCEDURES, FREQUENCIES AND SCHEDULES, AND SAMPLE HANDLING PRIOR TO TESTING; SAMPLE EXAMINATION; STREAM FLOW MEASUREMENTS, FIELD LABORATORY PLANNING; SOURCES OF STREAM INFORMATION; DATA INTERPRETATION; REPORT PREPARATION.

Exhibit 1. *Format Definition*

TABLE 3. CODE DEFINITION TABLE

	ITEM	DESCRIPTION	CODE DEFINITION
1	ID Number	unique 9-character field comprising a 4-digit agency/ program identifier (EPAW) plus a 5-digit sequence number	
2	Copyright Code	indicates whether item is copyrighted	C copyright blank no copyright
3	Item Title	title of the material	
4	Publication Date	month and year	
5	Author	up to two	
6	Type	up to four	AC audio tape cassette AR audio tape reel FS 35mm filmstrip MP motion picture OT overhead transparency PM printed matter SL 35 mm slide VC video tape cassette VR video tape reel
7	Category	up to 5 one-character codes broadly identifying the application area of the material	D design E explanatory L legal & regulatory M monitoring & surveillance O operations P planning S supervision T theory
8	Educational Level	defines educational use level of material	0 remedial 1 basic 2 intermediate 3 advanced
9	Originating Source	up to two; identifies organization responsible for the material	Consult *Source Code Table*
10	Cost	approximate dollar amount if item is available for purchase	
11	Purchase/Rent Code	indicates whether material can be rented or is available for purchase	R loan/rent/free P purchase
12	Subject	up to 16	Consult *Thesaurus*
13	Remarks	identifies special characteristics of the media that cannot be easily quantified	
14	Abstract	up to 5-120 character lines representing a professional summary of the material	

PRODUCT DEFINITION AND SAMPLES

Title Master Report

This report is one of the two master reports provided through IRIS. As a *Master Report* it completely describes each training material in the system. Alphabetically arranged by the title of the material, all authors, sources, types, categories, and subjects assigned to a particular training material are defined here. It also indicates *Educational Level*, rent, or purchase requirements (*Cost*), publication date, and copyright. An objective and concise abstract describing the material and its use, and a "remarks field" describing special physical and bibliographic characteristics of the item complete the record entry.

You must know the title of a material before using this report. To facilitate this, several indexes (subject, author, source, type, category) are provided which allow you to browse the IRIS system to select potentially relevant training materials. During this browsing process, you should jot down titles of materials and then consult the *Title Master Report* to read the full bibliographic citation and abstract before making a final materials selection.

Exhibit 2 on page 13 is an example of a page from the *Title Master Report*. This report is available in microfiche in the back of this manual.

TITLE MASTER REPORT

SEWAGE WORKS OPERATION UNIT 1 — DATE: 68-00
AUTHOR(S): ROMHOVDE I N — TYPE(S): PM — CATEGORIES: M O
SOURCE(S): TEXAS AM — COST: 1.67 P — LEVEL: 1 — ID NUMBER: EPAW00535 — COPYRIGHT:
SUBJECT AREAS:
CHLORINATION — ACTIVATED SLUDGE — COLLECTION SYSTEMS — PRIMARY TREATMENT
SLUDGE DIGESTION — TRICKLING FILTERS
REMARKS AND ABSTRACT:
63PP
INTRODUCTORY TEXT DESIGNED TO COMPLEMENT CLASSROOM INSTRUCTION. CHARACTERISTICS AND METHODS OF COLLECTING WASTEWATERS ARE PRESENTED, FOLLOWED BY A DISCUSSION OF THE MORE COMMON UNIT PROCESSES EMPLOYED IN PRIMARY AND SECONDARY TREATMENT. ADDITIONALLY, SOME CONSIDERATIONS OF ROUTINE TESTING AND SAFETY ARE PRESENTED.

SEWER CONSTRUCTION — DATE: 65-00
AUTHOR(S): PCA — TYPE(S): MP — CATEGORIES: D
SOURCE(S): PCA — COST: 9.00 R — LEVEL: 3 — ID NUMBER: EPAW00789 — COPYRIGHT:
SUBJECT AREAS:
SEWERS — CONCRETE PIPES — PLANT CONSTRUCTION
REMARKS AND ABSTRACT:
16PP, 18 MIN., COLOR: PURCHASE PRICE $110.
ILLUSTRATES PROPER PROCEDURES THROUGH EVERY PHASE OF A SEWER PROJECT, FROM STAKING OUT BY THE ENGINEER THROUGH FINAL COMPACTION OF BACKFILL. MANY ALTERNATE METHODS OF CONSTRUCTION ARE SHOWN WITH CONCRETE PIPE AND SEVERAL TYPES OF CONCRETE UNITS FOR MANHOLES. INCLUDES BOTH NEW AND CLASSICAL BEDDING METHODS, AND THE USE OF CONCRETE PIPE IN SIZES FROM 8-TO 72 INCH DIAMETER.

SEWER MAINTENANCE — DATE: 66-00
AUTHOR(S): WPCF — TYPE(S): PM — CATEGORIES: O S
SOURCE(S): WPCF — COST: 3.00 P — LEVEL: 2 — ID NUMBER: EPAW00121 — COPYRIGHT: C
SUBJECT AREAS:
COLLECTION SYSTEMS — CORRECTIVE MAINTENANCE — EMERGENCY OPERATIONS — EQUIPMENT (PLANT)
MAINTENANCE — OPERATIONS — SANITARY SEWERS
REMARKS AND ABSTRACT:
MOP RPT. NO. 7
GUIDE TO MAINTAINING A COLLECTION SYSTEM IN SERVICEABLE CONDITION. OUTLINES THE NEED FOR MAINTENANCE, DESIGN CONSIDERATIONS, SETTING UP A MAINTENANCE ORGANIZATION AND EQUIPMENT NEEDS.

SEWERAGE AND SEWAGE TREATMENT — DATE: 58-00
AUTHOR(S): BABBITT H E — BAUMAN E R — TYPE(S): PM — CATEGORIES: O P T
SOURCE(S): WILEY — COST: 23.95 P — LEVEL: 1 — ID NUMBER: EPAW01043 — COPYRIGHT: C
SUBJECT AREAS:
WASTEWATER TREATMENT — COLLECTION SYSTEMS
REMARKS AND ABSTRACT:
790PP., 8TH ED.
AN INTRODUCTORY TEXT TO WASTEWATER COLLECTION AND TREATMENT FOR THE ENGINEERING STUDENT.

Exhibit 2. Page from *Title Master Report*

Identification Number Master Report

This report is the second master report provided through IRIS. As a master report it completely describes each training material in the system. Sorted into ID number sequence, the title, all authors, sources, media types, application categories, and subjects assigned to a particular training material are defined here. It also indicates educational level, rent or purchase requirements, publication date, and copyright. An objective and concise abstract describing the material and its use, and a remarks field describing special physical and bibliographic characteristics of the item complete the record entry.

You must know the ID of a material before using this report. Because the ID number is short and easily remembered, it provides a valuable link between the five IRIS indexes and this master report. Indexes by subject, author, source, media type, and application category are provided which allow you to browse the IRIS system to select potentially relevant training materials. During this browsing process, you should jot down the ID's of materials and then consult the *Identification Number Master Report* to read the full bibliographic citation and abstract before making a final materials selection.

Exhibit 3 on the following page is a sample page from the *ID Master Report*. This report is available in microfiche in the back of this manual, as well as in Volume III. (See pages 32, 37, 41, 44 and 47 for examples on how to use the *ID Report*).

EPAW00027
ANIMALS ASSOCIATED WITH POTABLE WATER SUPPLIES OPERATORS IDENTIFICATION GUIDE DATE: 60-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: M
SOURCE(S): AWWA COST: 6.00 P LEVEL: 3 COPYRIGHT: C
SUBJECT AREAS:
AQUATIC ANIMALS BIOLOGICAL ANALYSIS
REMARKS AND ABSTRACT:
RPT. NO. 3007 MANUAL M7
IDENTIFICATION AND CLASSIFICATION OF AQUATIC ANIMALS

EPAW00028
WATER DISTRIBUTION TRAINING COURSE DATE: 61-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: O P S
SOURCE(S): AWWA COST: 9.50 P LEVEL: 3 COPYRIGHT: C
SUBJECT AREAS:
DISTRIBUTION SYSTEMS FLOWMETERS PIPES WATER METERS
RECORD KEEPING HYDRAULICS PUMPS MATHEMATICS
WATER STORAGE PREVENTIVE MAINTENANCE
REMARKS AND ABSTRACT:
RPT: AWWA M8, 165PP.
DESTRIBUTION SYSTEM ANALYZED FROM CONSTRUCTION (INCLUDING CUSTOMER SERVICE LINES), EQUIPMENT, ADMINISTRATION, AND MAINTENANCE ASPECTS. ALSO EMPHASIZES HYDRAULICS INCLUDING DISCUSSION OF EQUATIONS USED (HAZEN WILLIAM, TORRICELLI, BERNAULI); AND LEAK DETECTION. INDEX.

EPAW00029
INSTALLATION OF CONCRETE PIPE DATE: 61-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D
SOURCE(S): AWWA COST: 5.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
CONCRETE PIPES
REMARKS AND ABSTRACT:
RPT. NO. 30309, 32 PP.
THIS MANUAL PROVIDES A DESCRIPTION OF AVAILABLE CONCRETE PRESSURE PIPES AND SUGGESTIONS FOR INSTALLATION BASED ON EXPERIENCE IN VARIOUS PARTS OF THE UNITED STATES.

EPAW00030
SIMPLIFIED SYSTEM OF ACCOUNTS FOR MUNICIPALLY OWNED WATER UTILITIES DATE: 63-00
AUTHOR(S): AWWA NEWSOM R TYPE(S): PM CATEGORIES: E S T
SOURCE(S): AWWA COST: 5.00 P LEVEL: 3 COPYRIGHT: C
SUBJECT AREAS:
BUDGET AND ACCOUNTING RECORD KEEPING UTILITIES
REMARKS AND ABSTRACT:
RPT. NO 30010, PAPER BOUND
SIMPLIFIED ACCOUNTING SYSTEM AS USED IN SCARSDALE, N.Y.

Exhibit 3. Page from *Identification Number Master Report*

Author Index

IRIS allows up to two authors to be entered and indexed for each training material. The author may be corporate (i.e., a company, organization, association, etc.), or may be an individual. If a training material has more than two authors, the additional authors are listed in the remarks portion of the record, but they are not indexed and will not appear in the *Author Index*.

To use the *Author Index*, you should look for the author in the appropriate alphabetic position in the *Index*. There is no control list for authors (as there is for sources and subjects); therefore, you may find the author entered and indexed in more than one location. As an example, the Environmental Protection Agency, as an author, may have citations under both EPA and under ENVIRONMENTAL PROTECTION AGENCY. Each training material entry in the *Author Index* provides you with the ID, title, category(s), level, type(s), and publication date. When using the *Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 4 on the following page is a sample page from the *Author Index*. This index is available in microfiche in the back of this manual. (See page 44 on how to use the *Author Index*).

MESHENBERG M J
ID NUMBER: EPAW02713 — ENVIRONMENTAL PLANNING A GUIDE TO INFORMATION SOURCES
CATEGORIES: P T — TYPE: PM DATE: 76-00 LEVEL: 2

META
ID NUMBER: EPAW02036 — SYSTEMS ANALYSIS IN WATER RESOURCES PLANNING
CATEGORIES: T — TYPE: PM DATE: 75-00 LEVEL: 3

METCALF AND EDDY
ID NUMBER: EPAW00396 — WASTEWATER ENGINEERING
CATEGORIES: D M T — TYPE: PM DATE: 72-00 LEVEL: 3

METCALF P
ID NUMBER: EPAW02714 — BASIC MATHEMATICS AND WASTEWATER PROCESSING CALCULATIONS WORKBOOK
CATEGORIES: M O T — TYPE: PM DATE: 75-00 LEVEL: 0

METCALF R L
ID NUMBER: EPAW02040 — ADVANCES IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY VOLUME 5
CATEGORIES: T — TYPE: PM DATE: 75-00 LEVEL: 3

MFOA
ID NUMBER: EPAW00007 — WATER UTILITY ACCOUNTING
CATEGORIES: E S T — TYPE: PM DATE: 70-00 LEVEL: 3

MI BEH
ID NUMBER: EPAW00441 — BASIC LABORATORY PROCEDURES FOR WASTEWATER ANALYSIS (OUT OF PRINT)
CATEGORIES: O — TYPE: PM DATE: 76-99 LEVEL: 2

MIDDLEBROOKS E F
ID NUMBER: EPAW01942 — BIOSTIMULATION AND NUTRIENT ASSESSMENT
CATEGORIES: T — TYPE: PM DATE: 75-03 LEVEL: 3

ID NUMBER: EPAW01944 — STATISTICAL CALCULATIONS APPLICATIONS AND SOLUTIONS
CATEGORIES: T — TYPE: PM DATE: 76-01 LEVEL: 2

MIDDLEBROOKS E J
ID NUMBER: EPAW01909 — MODELING THE EUTROPHICATION PROCESS
CATEGORIES: M O P S — TYPE: PM DATE: 74-00 LEVEL: 3

MILLER S S
ID NUMBER: EPAW02067 — WATER POLLUTION
CATEGORIES: L T M — TYPE: PM DATE: 74-00 LEVEL: 3

Exhibit 4. Page from *Author Index*

Source Index

The *Source Index* provides controlled access to training materials by the originating source. This information is valuable to you in determining where and how to obtain a particular item. Up to two originating sources can be entered and indexed for any training material. Each source is entered as a controlled code. For example, any material originating within the Geological Survey of the U.S. Government is coded and entered as USGS. You need refer to only one location in the *Source Index* and be assured that all training materials captured in the IRIS system and originating from that source are listed together.

The *Source Index* is alphabetically arranged by source code. Each training material entry provides you with ID, title, author, category(s), level, type(s), and publication date. If you know the valid source code, you can immediately access the report by that code. In all other instances, you must refer first to the *Source Name Table* (Volume II), which lists all sources by their full name and gives the code equivalent.

When browsing the *Source Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 5 on the following page is a sample page from the *Source Index*. This index is available in microfiche in the back of this manual. (See page 32 for use of the *Source Index*).

FOXBORO
ID NUMBER: EPAW02553 — PH CONTROL — TYPE: SL VC — DATE: 75-04 — LEVEL: 3 — AUTHOR: FOXBORO
CATEGORIES: T D O

ID NUMBER: EPAW02554 — FUNDAMENTALS OF AUTOMATIC CONTROL — TYPE: VR VC MP — DATE: 75-01 — LEVEL: 3 — AUTHOR: FOXBORO
CATEGORIES: D O T S

FRANKLIN
ID NUMBER: EPAW02438 — OZONE CHEMISTRY AND TECHNOLOGY A REVIEW OF THE LITERATURE — TYPE: PM — DATE: 75-00 — LEVEL: 2 — AUTHOR: MURPHY J S
CATEGORIES: E O T

FREE PRESS
ID NUMBER: EPAW02033 — UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY — TYPE: PM — DATE: 74-00 — LEVEL: 3 — AUTHOR: ACKERMAN S R
CATEGORIES: P

FUTURE
ID NUMBER: EPAW02432 — INTERBASIN WATER TRANSFERS A CASE IN MEXICO — TYPE: PM — DATE: 74-00 — LEVEL: 3 — AUTHOR: CUMMINGS R G
CATEGORIES: P T D

GA EPD
ID NUMBER: EPAW00454 — BASIC WORKBOOK FOR WATER POLLUTION CONTROL PLANT OPERATORS — TYPE: PM — DATE: 74-00 — LEVEL: 1 — AUTHOR: GA STATE
CATEGORIES: O

GALE
ID NUMBER: EPAW01404 — WASTEWATER MANAGEMENT A GUIDE TO INFORMATION SOURCES — TYPE: PM — DATE: 76-00 — LEVEL: 1 — AUTHOR: TCHOBANOGLOUS G
CATEGORIES: E

ID NUMBER: EPAW02394 — ENVIRONMENTAL EDUCATION A GUIDE TO INFORMATION SOURCES — TYPE: PM — DATE: 75-00 — LEVEL: 1 — AUTHOR: STAPP W B
CATEGORIES: E

ID NUMBER: EPAW02713 — ENVIRONMENTAL PLANNING A GUIDE TO INFORMATION SOURCES — TYPE: PM — DATE: 75-00 — LEVEL: 2 — AUTHOR: MESHENBERG M J
CATEGORIES: P T

GOVT INST
ID NUMBER: EPAW02422 — ENVIRONMENTAL LAW HANDBOOK — TYPE: PM — DATE: 75-00 — LEVEL: 3 — AUTHOR: ARBUCKLE
CATEGORIES: L

ID NUMBER: EPAW02423 — ENVIRONMENTAL LAW FOR NON LAWYERS (OUT OF PRINT) — TYPE: PM — DATE: 74-00 — LEVEL: — AUTHOR: ARBUCKLE J G
CATEGORIES:

ID NUMBER: EPAW02727 — POLLUTION CONTROL IN THE MARINE INDUSTRIES — TYPE: PM — DATE: 74-00 — LEVEL: 3 — AUTHOR: GOVT INST
CATEGORIES: L P

Exhibit 5. Page from *Source Index*

Type Index

The *Type Index* categorizes training materials by media type (e.g., audio cassette, slides, video tape, printed matter, etc.). Many training materials are multimedia; therefore, IRIS allows up to four media types to be coded and indexed for each material. If an item has more than four media types, the additional types are entered in the remarks field of the record but are not indexed and will not appear in the *Type Index*.

The *Type Index* is alphabetically arranged by type code. Each training material entry provides you with ID, title, author, category(s), level and publication date. If you know the valid media type code, you can immediately access the report by that code and review all materials which are supported by that medium. In all other instances, you should refer first to the *Code Definition Table* (inside back cover), determine which code describes the desired media type, and access the *Type Index* by that code.

When browsing the *Type Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 6 on the following page is a sample page from the *Type Index*. This index is available in microfiche in the back of this manual. (See page 41 for an example on how to use the *Type Index*).

TYPE:

AC

ID NUMBER: EPAW00556 RESIDUAL CHLORINE AND CHLORINE DEMAND
CATEGORY: M DATE: 74-03 LEVEL: 1 AUTHOR: EPA

ID NUMBER: EPAW00557 DETERMINATION OF CHEMICAL OXYGEN DEMAND
CATEGORY: M DATE: 71-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00694 POLLUTION DISPLAY (OUT OF PRINT)
CATEGORY: DATE: 76-99 LEVEL: AUTHOR: NEIWPCC

ID NUMBER: EPAW00709 MEASUREMENT OF DISSOLVED OXYGEN AZIDE WINKLER PROCEDURE
CATEGORY: M DATE: 72-00 LEVEL: 2 AUTHOR: LAMB

ID NUMBER: EPAW00771 DETERMINATION OF TOTAL ORGANIC CARBON
CATEGORY: M DATE: 73-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00850 USE OF SPECTRONIC 20 SPECTROPHOTOMETER
CATEGORY: M DATE: 72-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00852 DETERMINATION OF BIOCHEMICAL OXYGEN DEMAND
CATEGORY: M DATE: 72-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00899 BASIC STATISTICS PART I
CATEGORY: M O S DATE: 72-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00900 BASIC STATISTICS PART II
CATEGORY: M O S DATE: 72-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00901 DETERMINATION OF GREASE AND OIL
CATEGORY: M DATE: 74-03 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00902 DETERMINATION OF SUSPENDED SOLIDS
CATEGORY: M DATE: 73-00 LEVEL: 1 AUTHOR: EPA

ID NUMBER: EPAW00903 PROCESS CONTROL DEMANDS PART A
CATEGORY: O S DATE: 72-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00904 PROCESS CONTROL DEMANDS PART B
CATEGORY: O S DATE: 72-00 LEVEL: 2 AUTHOR: EPA

Exhibit 6. Page from *Type Index*

Category Index

The *Category Index* categorizes training materials by their application area, or broad subject interest (e.g., legal and regulatory, operations, supervision, etc.). Up to five application codes may be entered and indexed for each training material.

The *Category Index* is alphabetically arranged by category code. Each training material entry provides you with ID, title, author, media type(s), level and publication date. If you know the valid category code, you can immediately access the report by that code and review all materials in that broad subject area. In all other instances, you should refer first to the *Code Definition Table* (inside the back cover), determine which code describes the application area, and access the index by that code.

When browsing the *Category Index*, you should jot down the ID or the title of pertinent training materials. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, you can locate the selected citations and review the full training material record before making a final materials selection.

Exhibit 7 on the following page is a sample page from the *Category Index*. This report is available in microfiche in the back of this manual. (See page 37 for an example on how to use the *Category Index*).

CATEGORY INDEX

CATEGORY:

D

ID NUMBER: EPAW00073 AWWA STANDARD FOR CHLORINATED RUBBER/ALKYD PAINT SYSTEM FOR THE EXTERIOR OF ABOVE GROUND STEEL WATER PIPI
TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00074 AWWA STANDARD FOR COAL TAR ENAMEL PROTECTIVE COATINGS FOR STEEL WATER PIPE
TYPE: PM DATE: 73-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00075 AWWA STANDARD FOR CEMENT MORTAR PROTECTIVE LINING AND COATING FOR STEEL WATER PIPE 4 INCH OR LARGER
TYPE: PM DATE: 71-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00076 AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE JOINTS
TYPE: PM DATE: 62-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00077 AWWA STANDARD FOR STEEL PIPE FLANGES
TYPE: PM DATE: 55-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00078 AWWA STANDARD FOR DIMENSIONS FOR STEEL WATER PIPE FITTINGS
TYPE: PM DATE: 59-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00079 AWWA STANDARD FOR REINFORCED CONCRETE PRESSURE PIPE STEEL CYLINDER TYPE FOR WATER AND OTHER LIQUIDS
TYPE: PM DATE: 74-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00080 AWWA STANDARD FOR PRESTRESSED CONCRETE PRESSURE PIPE STEEL CYLINDER TYPE FOR WATER AND OTHER LIQUIDS
TYPE: PM DATE: 72-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00081 AWWA STANDARD FOR REINFORCED CONCRETE WATER PIPE NONCYLINDER TYPE NOT PRESTRESSED
TYPE: PM DATE: 74-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00082 AWWA STANDARD FOR REINFORCED CONCRETE WATER PIPE STEEL CYLINDER TYPE PRETENSIONED
TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00083 AWWA STANDARD FOR ASBESTOS CEMENT PRESSURE PIPE FOR WATER AND OTHER LIQUIDS
TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00084 AWWA STANDARD PRACTICE FOR THE SELECTION OF ASBESTOS CEMENT WATER PIPE
TYPE: PM DATE: 64-00 LEVEL: 2 AUTHOR: AWWA

ID NUMBER: EPAW00085 AWWA STANDARD FOR GATE VALVES 3 INCH THROUGH 48 INCH FOR WATER AND OTHER LIQUIDS
TYPE: PM DATE: 71-00 LEVEL: 2 AUTHOR: AWWA

Exhibit 7. Page from *Category Index*

Subject Index

This index provides controlled subject access to training materials retained in IRIS. Each training material is categorized by up to 16 subjects, all of which are selected from a controlled *Thesaurus* supporting the system. Subject terms used in the system are only terms found in the *Thesaurus*. Because of the "multiple indexing" feature of the system, the abridged citation (containing title, author, ID, type(s), category(s), level and publication date) for a training material will appear under every subject term assigned. As an example, a material is assigned two subject terms, SLUDGE TREATMENT and ULTIMATE DISPOSAL. The same bibliographic citation describing that training material will appear under the term SLUDGE TREATMENT and also under the term ULTIMATE DISPOSAL.

To assist you in accessing the *Subject Index*, a "cross reference" network of valid subject terms is provided. If you initially search under a subject term not used in the system, where possible, you are directed to a valid subject term through the USE reference. When you search under a valid term and other valid terms also apply to the same concept, you are notified through the SEE ALSO reference, which lists these related valid terms.

This index is alphabetically arranged by subject term. All training materials in the system which have been categorized by this term appear directly underneath the term sorted by ID number order. To use the index, search under several subject terms which appear to meet your informational requirement and jot down the ID number or the title of training material citations which appear to meet your information need. Using the ID number to access the *ID Report*, or the title to access the *Title Report*, locate the selected citations to make the final selection of material.

Exhibit 8 on the following page is a sample page from the *Subject Index*. This index is available in microfiche in the back of this manual as well as in Volume IV. (See page 47 for an example on how to use the *Subject Index*.)

CARBON DIOXIDE
ID NUMBER: EPAW01858 PLANT SAFETY PROGRAMMED INSTRUCTION MANUAL
CATEGORIES: O TYPE: PM LEV: 1 AUTH: TECH PUBL DATE: 74-09

CARBONACEOUS OXYGEN DEMAND
USE: BIOCHEMICAL OXYGEN DEMAND

CARBONATES
SEE ALSO: BICARBONATES

ID NUMBER: EPAW00466 ALKALINITY
CATEGORIES: M TYPE: PM SL AC LEV: 2 AUTH: EPA DATE: 73-00

ID NUMBER: EPAW01076 WATER PH UNIT
CATEGORIES: E T TYPE: OT LEV: 2 AUTH: LAMOTTE DATE: 76-99

CASE STUDIES
ID NUMBER: EPAW01936 SCIENCE AND ENGINEERING FOR POLLUTION FREE SYSTEMS
CATEGORIES: D T P TYPE: PM LEV: 3 AUTH: KROFCHAK D DATE: 75-02

ID NUMBER: EPAW01952 INDUSTRIAL PROCESS DESIGN FOR POLLUTION CONTROL VOLUME 4
CATEGORIES: D M L TYPE: PM LEV: 3 AUTH: AICHE DATE: 72-00

ID NUMBER: EPAW02032 WATER MANAGEMENT AND AGRICULTURAL DEVELOPMENT
CATEGORIES: P TYPE: PM LEV: 3 AUTH: FREDERICK K D DATE: 75-00

ID NUMBER: EPAW02033 UNCERTAIN SEARCH FOR ENVIRONMENTAL QUALITY
CATEGORIES: P TYPE: PM LEV: 3 AUTH: ACKERMAN S R DATE: 74-00

ID NUMBER: EPAW02056 SANTA BARBARA OIL SPILL
CATEGORIES: E TYPE: SL FS PM VC LEV: 1 AUTH: RUHLE J L DATE: 74-00

ID NUMBER: EPAW02184 WITHIN OUR REACH
CATEGORIES: E P TYPE: MP LEV: 2 AUTH: EPA DATE: 76-00

ID NUMBER: EPAW02623 DECISION MAKING IN WATER RESOURCE ALLOCATION
CATEGORIES: P TYPE: PM LEV: 3 AUTH: PARK J R DATE: 73-00

CAST IRON PIPES
ID NUMBER: EPAW00063 AMERICAN NATIONAL STANDARD FOR THICKNESS DESIGN OF CAST IRON PIPE
CATEGORIES: D T TYPE: PM LEV: 2 AUTH: AWWA DATE: 67-00

Exhibit 8. Page from *Subject Index*

Thesaurus

The *Thesaurus* is valuable as a preliminary step to using the *Subject Index*. This table allows you to rapidly browse the entire vocabulary structure used to support the training materials system, select all terms of interest to you, and thus access the *Subject Index* with an assurance that all pertinent terms will be accessed and all potentially relevant training materials reviewed.

To use this table, determine the most appropriate term(s) to describe your subject interest, and locate these terms in their alphabetic position within the table. If the term has been designated as a valid subject term, associated valid subject terms will be referenced (if applicable) through a SEE ALSO indicator. This allows you to immediately review all terms which are closely associated with the original term. If the term has been designated as a nonvalid subject term, the nonvalid term appears, followed by a USE reference which directs you to the appropriate valid term(s). Because the *Thesaurus* is designed to encompass all valid terms in the water quality control field, a term may appear in the *Thesaurus* but not in the *Subject Index*. This means that no document has been entered into IRIS to date which required the use of that subject descriptor.

Exhibit 9 on the following page is a sample page from the *Thesaurus*. This table is available in microfiche in the back of this manual, as well as in Volume II. (See page 48 for an example on how to use the *Thesaurus*.)

RESERVOIRS

RESIDUAL CHLORINE
USE: CHLORINE RESIDUAL

RESIDUES

RESOURCE MANAGEMENT

RESOURCE RECOVERY

REVERSE OSMOSIS
SEE ALSO: OSMOSIS

RIVERS
SEE ALSO: SPECIFIC RIVERS, EG. MISSISSIPPI RIVER, POTOMAC

RODENT CONTROL

ROTARY PUMPS

RURAL IMPACT
SEE ALSO: EROSION, AGRICULTURE

SAFETY
SEE ALSO: FIRST AID

SAFETY (CHEMICAL)

SAFETY (ELECTRICAL)

SAFETY (FIRES)
SEE ALSO: FIRES

SAFETY (MECHANICAL)

Exhibit 9. Page from *Thesaurus*

Source Code Table

The *Source Code Table* is an IRIS product designed to provide you with information about the publishing source for the various instructional materials. This table is valuable if you wish to purchase, rent, or otherwise obtain specific training materials.

The *Source Code Table* alphabetically lists all sources by their code. Each entry gives the full source name and address. If you have selected particular training materials by using the *Title Master Report* or *Identification Number Master Report*, and wish to obtain this material, you would use the *Source Code Table* to obtain the full address.

Exhibit 10 on the following page is a sample page from the *Source Code Table*. The *Source Code Table* is found in Volume II. (See page 33 for an example on how to use the *Source Code Table*.)

CAN AUDIO -- AUDIO ARCHIVES OF CANADA
250 MERTON ST
TORONTO ONTARIO
M4F 1B1 CANADA

CAN GE -- CANADIAN GENERAL ELECTRIC
FILM LIBRARY
214 KING STREET WEST
TORONTO,ONTARIO,CANADA

CAN IND -- CANADIAN INDUSTRIES LTD
FILM LIBRARY
P.O. BOX 10
MONTREAL,QUEBEC,CANH3C2R3

CAN NFBC -- NATL FILM BOARD OF CAN
1251 AVENUE OF THE AMER.
NEW YORK, NY 10020

CAN TEX -- CAN TEX INDUSTRIES INC
FILM LIBRARY
P.O.BOX 340
MINERAL WELLS, TX 76067

CAP CON -- CAPITOL CONTROLS CO INC
ADVANCE LANE
COLMAR, PA 18915

CAPITOL -- CAPITOL FILM LIBRARY
470 EAST ST.,SW
WASHINGTON, DC 20024

CCCC -- MIDDLE ATLANTIC APPLIED
TECHNICAL INSTITUTE
CHARLES CO COMM COLLEGE
LA PLATA, MD 20645

CELANESE -- CELANESE PIPING SYSTEMS
4300 CEMETERY RD
HILLIARD, OH 43206

CENTRON -- CENTRON EDUCATIONAL FILMS
1621 WEST NINTH STREET
LAWRENCE, KS 66044

CERT TEED -- CERTAIN TEED PRODUCTS CORP
PIPE DIVISION
LEA BUILDING
AMBLER, PA 19002

CHEM PUBL -- CHEMICAL PUBL CO INC
200 PARK AVENUE SOUTH
NEW YORK, NY 10003

CHEVRON -- CHEVRON CHEMICAL CO INC
P O BOX 3744
SAN FRANCISCO, CA 94119

CHILTON -- CHILTON BOOK CO
401 WALNUT STREET
PHILADELPHIA, PA 19105

Reproduced from best available copy.

Exhibit 10. Page from *Source Code Table*

Source Name Table

The *Source Name Table* provides an alphabetic listing by source name. If you wish to locate all material produced by a specific source, you would first reference this report by locating the source name and determining the proper source code. Using this code, you can then access the *Source Index*, which lists all training materials produced by that source.

Exhibit 11 on the following page is a sample page from the *Source Name Table*. The *Source Name Table* is found in Volume II. (See page 33 for an example of how to use the *Source Name Table*.)

INTEXT EDUCATIONAL PUBLISHERS SUBSID OF INTERN TEXTBOOK CO	--INTEXT
IZAAK WALTON LEAGUE OF AMERICA, INC.	--IZAAK WAL
JOHNS HOPKINS UNIV PRESS KENNETH C FREDERICK	--JOHNS HOPK
JOHNS MANVILLE	--J MANVILLE
JOHNSON DIVISION UNIVERSAL OIL PRODUCTS CO.	--UNIV OIL
JOHNSTON WELL DRILLING	--JOHNSTON
JOSAM MANUFACTURING COMPANY	--JOSAM
JOURNAL FILMS INC	--JNL FILMS
KALMIA COMPANY	--KALMIA
KRIEGER (ROBERT E) PUBL CO	--KRIEGER
LAMOTTE CHEMICAL PRODUCTS EDUCATIONAL PRODUCTS DIV	--LAMOTTE
LANSFORD PUBL CO DEPT B	--LANSFORD
LEAGUE OF WOMEN VOTERS EDUCATION FUND	--LWV
LEARNING CORP OF AMERICA	--LCA
LEUPOLD AND STEVENS INC	--LEUPOLD
LINK BELT COMPANY FREE FILM LIBRARY	--LINK BELT
LITTLE INC LEARNING SYSTEMS NEW BOSTON HOUSE	--LITTLE INC
LONGMAN INC	--LONGMAN
MAD RIVER PRESS	--MAD RIVER
MANAGEMENT SOURCE BOOKS INC	--MGT SOURCE
MANUFACTURING CHEMISTS ASSOC	--MCA
MARCEL DEKKER INC	--MARCEL

Exhibit 11. Page from *Source Name Table*

Using IRIS Products

REPRESENTATIVE USE OF *SOURCE INDEX*

Question:

I have obtained excellent material from the Water Pollution Control Federation. How can I review what they have published since 1970?

Search Strategy:

Step 1. Using the *Source Name Table*, locate Water Pollution Control Federation to determine the proper source code. (See Exhibit 12, page 33).

Step 2. Using the *Source Index*, look up that source code and review all entries listed which have publication dates of 1970 or later, noting the ID's and (for this example only) the titles of all materials meeting this criterion. (See Exhibit 13, page 34).

Step 3. Using the *Identification Number Master Report*, look up each ID to review the complete record for each material to make final selection. (See Exhibit 14, page 35).

Step 4. To illustrate the similar usefulness of the *Master Title Report*, look up each title to review the complete record for each material. You will note that the record is identical to that of the *ID Report*. Accordingly, with any information request you may have, you have the option of using the ID's or the title(s) of the materials which initially meet your selection criteria. (See Exhibit 15, page 36).

USA COMMANDING GENERAL FIRST U.S. ARMY	--ARMY
VAN NOSTRAND REINHOLD CO	--VAN NOSTRA
VANTAGE PRESS INC	--VANTAGE
VIBRA SCREW INC	--VIBRA
VISCOUNT PRESS LTD 470 COLLIER MACMILLAN DR	--VISCOUNT
VWR SCIENTIFIC	--VWR
WADSWORTH PUBLISHING CO	--WADSWORTH
WATER & WASTEWATER EQUIP MANUF ASSO INC SUITE 304	--WWEMA
WATER AND SEWAGE WORKS SCRANTON PUBL. COMPANY, INC.	--SCRANTON
WATER AND WASTES ENGINEERING BOOK DEPT	--WWE
WATER INFORMATION CTR INC DEPT 25	--WIC
WATER POLLUTION CONTROL FED PUBLICATIONS DEPT	--WPCF
WATER RESOURCES PUBLICATIONS	--CO WRP
WATER WASTEWATER TRAINING K RAUCH, GREEN RIV COMM COLL	--GREEN RIV
WATTS REGULATOR CO	--WATTS
WESTERN MICHIGAN UNIV	--WESTER MI
WESTVACO CHEMICAL DIV	--WESTVACO
WILEY AND SONS INC	--WILEY
WOLFF PRODUCTIONS	--WOLFF
WORLD HEALTH ORGANIZATION DISTRIBUTION & SALES SERV	--WHO
WY DEPT OF ENVIRONMENTAL QUALITY	--WY DEQ
ZIMPRO INC	--ZIMPRO

Exhibit 12. Page from *Source Name Table*

SOURCE INDEX

WPCF

ID NUMBER: EPAW00115 WATER POLLUTION CONTROL FEDERATION JOURNAL FIVE YEAR INDEX 1964-1968
CATEGORIES: M O P S T TYPE: PM DATE: 69-00 LEVEL: 3 AUTHOR: WPCF

ID NUMBER: EPAW00116 SAFETY IN WASTEWATER WORKS
CATEGORIES: O S TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00117 UTILIZATION OF MUNICIPAL WASTEWATER SLUDGE
CATEGORIES: D O P TYPE: PM DATE: 71-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00118 REGULATION OF SEWER USE
CATEGORIES: L M O P TYPE: PM DATE: 75-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00119 AERATION IN WASTEWATER TREATMENT
CATEGORIES: O O TYPE: PM DATE: 71-00 LEVEL: 3 AUTHOR: WPCF

ID NUMBER: EPAW00120 UNITS OF EXPRESSION FOR WASTES AND WASTE TREATMENT
CATEGORIES: O M O T TYPE: PM DATE: 76-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00121 SEWER MAINTENANCE
CATEGORIES: O S TYPE: PM DATE: 66-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00122 SEWAGE TREATMENT PLANT DESIGN
CATEGORIES: O TYPE: PM DATE: 59-00 LEVEL: 3 AUTHOR: WPCF

ID NUMBER: EPAW00124 UNIFORM SYSTEM OF ACCOUNTS FOR WASTEWATER UTILITIES
CATEGORIES: O S TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: WPCF

→ ID NUMBER: EPAW00125 OPERATION OF WASTEWATER TREATMENT PLANTS
CATEGORIES: M O S TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00126 ANAEROBIC SLUDGE DIGESTION
CATEGORIES: O TYPE: PM DATE: 68-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00127 PAINTS AND PROTECTIVE COATINGS FOR WASTEWATER TREATMENT FACILITIES
CATEGORIES: O O TYPE: PM DATE: 69-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00128 SLUDGE DEWATERING
CATEGORIES: O O TYPE: PM DATE: 69-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00129 SIMPLIFIED LABORATORY PROCEDURES FOR WASTEWATER EXAMINATION
CATEGORIES: O S TYPE: PM DATE: 69-00 LEVEL: 2 AUTHOR: WPCF

Exhibit 13. Page from *Source Index*

EPAW00125

OPERATION OF WASTEWATER TREATMENT PLANTS

AUTHOR(S): WPCF
SOURCE(S): WPCF
SUBJECT AREAS:
OPERATIONS (WASTEWATER)
GRIT REMOVAL
SLUDGE DEWATERING
DISINFECTION

COST: 4.00 P

SAMPLING
SEDIMENTATION
SLUDGE DISPOSAL
GLOSSARIES

TYPE(S): PM
LEVEL: 2

PUMPS
SLUDGE DIGESTION
DEGASIFICATION
FLOW MEASUREMENT

DATE: 70-00
CATEGORIES: M O S
COPYRIGHT: C

SCREENING AND GRINDING
SLUDGE CONDITIONING
TRICKLING FILTERS

REMARKS AND ABSTRACT:
RPT: MCP-11, 195PP.
EACH PROCESS SUCCINCTLY IDENTIFIED BY FUNDAMENTALS, PROCESS DESCRIPTION AND MANAGEMENT. EMERGENCY OPERATIONS DESCRIBED WHERE PERTINENT; EQUIPMENT DESCRIPTIONS (EG. IMHOFF TANKS, ENGINES, PUMPS, ETC), AND ADMINISTRATIVE CONSIDERATIONS COVERED. SOURCE OF BRIEF DEFINITIONS FOR ALL TREATMENT PROCESSES. DETAILED TABLE OF CONTENTS.

EPAW00126

ANAEROBIC SLUDGE DIGESTION

AUTHOR(S): WPCF
SOURCE(S): WPCF
SUBJECT AREAS:
ANAEROBIC DIGESTION

COST: 3.00 P

SLUDGE DIGESTION

TYPE(S): PM
LEVEL: 2

BIODEGRADATION

DATE: 68-00
CATEGORIES: O
COPYRIGHT: C

OPERATIONS

REMARKS AND ABSTRACT:
MCP RPT. NO. 16
DESIGNED TO PROVIDE TREATMENT PLANT OPERATORS WITH THE FUNDAMENTAL THEORY OF ANAEROBIC SLUDGE DIGESTION AS IT CAN BE APPLIED TO SOLVING PLANT OPERATION PROCEDURES AND PROBLEMS.

EPAW00127

PAINTS AND PROTECTIVE COATINGS FOR WASTEWATER TREATMENT FACILITIES

AUTHOR(S): WPCF
SOURCE(S): WPCF
SUBJECT AREAS:
PROTECTIVE COATINGS

COST: 3.00 P

MAINTENANCE

TYPE(S): PM
LEVEL: 2

DATE: 69-00
CATEGORIES: O O
COPYRIGHT: C

REMARKS AND ABSTRACT:
MCP RPT. NO. 17
INTENDED TO PROVIDE DESIGNERS, OPERATORS, AND MAINTENANCE PERSONNEL OF WASTEWATER COLLECTION AND TREATMENT FACILITIES WITH THE FUNDAMENTAL THEORY AND PRACTICAL ASPECTS OF THE NEED FOR, CHOICE OF, APPLICATION OF, AND MAINTENANCE OF PAINTS AND PROTECTIVE COATINGS.

EPAW00128

SLUDGE DEWATERING

AUTHOR(S): WPCF
SOURCE(S): WPCF
SUBJECT AREAS:
SLUDGE DEWATERING

COST: 6.00 P

TYPE(S): PM
LEVEL: 2

DATE: 69-00
CATEGORIES: O O
COPYRIGHT: C

REMARKS AND ABSTRACT:
MOP RPT. 20
PROVIDES A SUMMARY OF CURRENT PRACTICE IN SLUDGE CONDITIONING METHODS AND PROCEDURES USED FOR DEWATERING SETTLED SLUDGE FROM WASTEWATER TREATMENT PLANTS.

Exhibit 14. Page from *Identification Number Master Report*

OPERATION OF CHLORINE VAPORIZING EQUIPMENT — DATE: 70-06

AUTHOR(S): CHLOR INST — TYPE(S): PM — CATEGORIES: O D

SOURCE(S): CHLOR INST — COST: 1.75 P — LEVEL: 2 — ID NUMBER: EPAW00965 — COPYRIGHT:

SUBJECT AREAS:

CHLORINE

REMARKS AND ABSTRACT:

(NO. 9), 16PP.

CONTAINS INFORMATION INTENDED TO ASSIST IN THE SELECTION, DESIGN AND SAFE OPERATION OF VAPORIZERS.

OPERATION OF THERMAL SLUDGE CONDITIONING UNIT — DATE: 76-99

AUTHOR(S): ZIMPRO — TYPE(S): SL AC — CATEGORIES: E O

SOURCE(S): ZIMPRO — COST: 0.00 R — LEVEL: 1 — ID NUMBER: EPAW01402 — COPYRIGHT:

SUBJECT AREAS:

SLUDGE CONDITICNING

REMARKS AND ABSTRACT:

15 MIN.

DESCRIBES OPERATION OF TYPICAL SLUDGE CONDITIONING UNIT, WHICH EMPLOYS WET AIR OXIDATION.

OPERATION OF WASTEWATER TREATMENT PLANTS — DATE: 70-00

AUTHOR(S): KERRI K — TYPE(S): PM — CATEGORIES: M O S T

SOURCE(S): SACRAMENTO — COST: 25.00 P — LEVEL: 2 — ID NUMBER: EPAW00141 — COPYRIGHT:

SUBJECT AREAS:

PRIMARY TREATMENT	SEDIMENTATION	PUMPS	TRICKLING FILTERS
ACTIVATED SLUDGE	DIGESTION	SLUDGE TREATMENT	STABILIZATION LAGOONS
CHLORINATION	SAFETY	MAINTENANCE	CHEMICAL ANALYSIS
SAMPLING	ARITHMETIC	OPERATIONS (WASTEWATER)	

REMARKS AND ABSTRACT:

APPROX. 1000 PP. INSTRUCTOR'S MANUAL, $10.00

WRITTEN BY EXPERIENCED OPERATORS WITH THE INTENT OF PROVIDING OPERATORS WITH THE INFORMATION THEY NEED TO KNOW TO OPERATE THEIR PLANTS AS EFFICIENTLY AS POSSIBLE. OPERATORS, PERSONS INTERESTED IN BECOMING OPERATORS, AND PERSONS INTERESTED IN THE OPERATION OF TREATMENT PLANTS WILL FIND VALUABLE INFO IN THE MANUAL. TOPICS COVERED INCLUDE DESCRIPTION OF PLANTS, RACKS, SCREENS, COMMINUTORS, GRIT REMOVAL, SEDIMENTATION, TRICKLING FILTERS, ACTIVATED SLUDGE, SLUDGE DIGESTION AND HANDLING, PONDS, CHLORINATION, MAINT, SAFETY, MATH, LAB, RECORD.

OPERATION OF WASTEWATER TREATMENT PLANTS — DATE: 70-00

AUTHOR(S): WPCF — TYPE(S): PM — CATEGORIES: M O S

SOURCE(S): WPCF — COST: 4.00 P — LEVEL: 2 — ID NUMBER: EPAW00125 — COPYRIGHT: C

SUBJECT AREAS:

OPERATIONS (WASTEWATER)	SAMPLING	PUMPS	SCREENING AND GRINDING
GRIT REMOVAL	SEDIMENTATION	SLUDGE DIGESTION	SLUDGE CONDITIONING
SLUDGE DEWATERING	SLUDGE DISPOSAL	DEGASIFICATION	TRICKLING FILTERS
DISINFECTION	GLOSSARIES	FLOW MEASUREMENT	

REMARKS AND ABSTRACT:

RPT: MOP-11, 195PP.

EACH PROCESS SUCCINCTLY IDENTIFIED BY FUNDAMENTALS, PROCESS DESCRIPTION AND MANAGEMENT. EMERGENCY OPERATIONS DESCRIBED WHERE PERTINENT; EQUIPMENT DESCRIPTIONS (EG. IMHOFF TANKS, ENGINES, PUMPS, ETC), AND ADMINISTRATIVE CONSIDERATIONS COVERED. SOURCE OF BRIEF DEFINITIONS FOR ALL TREATMENT PROCESSES. DETAILED TABLE OF CONTENTS.

Exhibit 15. Page from *Title Master Report*

REPRESENTATIVE USE OF *CATEGORY INDEX*

Question:

I need additional training materials in the plant operations area but am limited to a slide format. How do I locate these materials?

Search Strategy:

Step 1. Refer to the *Code Definition Table* to determine the proper category code for operations. (See Exhibit 16, page 38). Also note code for 35 mm slide material.

Step 2. Use the *Category Index*, searching under the proper code, to review all training materials supporting a slide format and note the ID's for all training materials meeting selection criteria. (See Exhibit 17, page 39).

Step 3. Use the *Identification Number Master Report* to review the complete record for each training material for final selection. (See Exhibit 18, page 40).

TABLE 3. CODE DEFINITION TABLE

	ITEM	DESCRIPTION	CODE DEFINITION
1	ID Number	unique 9-character field comprising a 4-digit agency/ program identifier (EPAW) plus a 5-digit sequence number	
2	Copyright Code	indicates whether item is copyrighted	C copyright blank no copyright
3	Item Title	title of the material	
4	Publication Date	month and year	
5	Author	up to two	
6	Type	up to four	AC audio tape cassetts AR audio tape reel FS 35mm filmstrip MP motion picture OT overhead transparency PM printed matter SL 35mm slide VC video tape cassette VR video tape reel
7	Category	up to 5 one-character codes broadly identifying the application area of the material	D design E explanatory L legal & regulatory M monitoring & surveillance O operations P planning S supervision T theory
8	Educational Level	defines educational use level of material	0 remedial 1 basic 2 intermediate 3 advanced
9	Originating Source	up to two; identifies organization responsible for the material	Consult *Source Code Table*
10	Cost	approximate dollar amount if item is available for purchase	
11	Purchase/Rent Code	indicates whether material can be rented or is available for purchase	R loan/rent/free P purchase
12	Subject	up to 16	Consult *Thesaurus*
13	Remarks	identifies special characteristics of the media that cannot be easily quantified	
14	Abstract	up to 5-120 character lines representing a professional summary of the material	

Exhibit 16. *Code Definition Table*

CATEGORY INDEX

CATEGORY:

0

ID NUMBER: EPAW00133 WASTEWATER TREATMENT PLANT OPERATOR TRAINING COURSE 2 ←
TYPE: PM SL DATE: 67-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00134 SAFETY PROGRAM PROMOTION
TYPE: PM SL DATE: 69-00 LEVEL: 2 AUTHOR: WPCF

ID NUMBER: EPAW00135 PICTORIAL REVIEW OF WASTEWATER TREATMENT FACILITIES AND EQUIPMENT
TYPE: PM DATE: 76-99 LEVEL: 2 AUTHOR: NE NEWWI

ID NUMBER: EPAW00138 MARGIN FOR SAFETY
TYPE: PM SL DATE: 70-00 LEVEL: 1 AUTHOR: WPCF

ID NUMBER: EPAW00139 MANUAL OF INSTRUCTION FOR WATER TREATMENT PLANT OPERATORS
TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: NY HES

ID NUMBER: EPAW00140 MANUAL OF INSTRUCTION FOR SEWAGE TREATMENT PLANT OPERATORS
TYPE: PM DATE: 65-00 LEVEL: 3 AUTHOR: NY HES

ID NUMBER: EPAW00141 OPERATION OF WASTEWATER TREATMENT PLANTS
TYPE: PM DATE: 70-00 LEVEL: 2 AUTHOR: KERRI K

ID NUMBER: EPAW00143 PROCEDURES FOR EVALUATING PERFORMANCE OF WASTEWATER TREATMENT PLANTS A MANUAL
TYPE: PM DATE: 72-00 LEVEL: 3 AUTHOR: URS RESEARCH CO

ID NUMBER: EPAW00160 OIL AND GAS ENGINES
TYPE: PM DATE: 76-99 LEVEL: 2 AUTHOR: POWER MAG

ID NUMBER: EPAW00175 OIL ON THE RIVER
TYPE: MP DATE: 61-00 LEVEL: 2 AUTHOR: ORSANCO

Exhibit 17. Page from *Category Index*

EPAW00133

WASTEWATER TREATMENT PLANT OPERATOR TRAINING COURSE 2 DATE: 67-00

AUTHOR(S): WPCF TYPE(S): PM SL CATEGORIES: O S

SOURCE(S): WPCF COST: 50.00 P LEVEL: 2 COPYRIGHT: C

SUBJECT AREAS:

INSTRUCTION	OPERATIONS (WASTEWATER)	ANALYTICAL TECHNIQUES	HYDRAULICS
PREVENTIVE MAINTENANCE	RECORD KEEPING	SLUDGE TREATMENT	STABILIZATION LAGOONS
DISINFECTION	SAMPLING	SAFETY	DATA EVALUATION

REMARKS AND ABSTRACT:

PPT: PUB.NO. 14, 154PP.

AUGMENTED BY 166 COLOR SLIDES, TRAINING GUIDE PROVIDES INSTRUCTOR WITH DETAILED COURSE OUTLINES FOR ALL WASTEWATER TREATMENT PROCESSES (EG. ANAEROBIC DIGESTION, TRICKLING FILTERS, ETC) AS WELL AS GENERAL INFORMATION ON HYDRAULICS, EQUIPMENT AND ADMINISTRATIVE ASPECTS OF PLANT OPERATION. APPENDIX CONTAINS DESCRIPTION OF EACH COLOR SLIDE USED FOR COURSE.

EPAW00134

SAFETY PROGRAM PROMOTION DATE: 69-00

AUTHOR(S): WPCF TYPE(S): PM SL CATEGORIES: O S

SOURCE(S): WPCF COST: 16.50 LEVEL: 2 COPYRIGHT: C

SUBJECT AREAS:

SAFETY

REMARKS AND ABSTRACT:

OUTLINES AND SLIDES WERE DEVELOPED TO PROMOTE EFFECTIVE SAFETY PROGRAMS IN ALL WATER POLLUTION CONTROL AGENCIES. TWO SEPARATE MANUALS WITH 35 MM SLIDE ILLUSTRATIONS ARE INCLUDED: "WHY A SAFETY PROGRAM IN EVERY WATER POLLUTION CONTROL WORKS", AND "SAFETY PROGRAM GUIDE FOR WATER POLLUTION CONTROL SYSTEMS".

EPAW00135

PICTORIAL REVIEW OF WASTEWATER TREATMENT FACILITIES AND EQUIPMENT DATE: 76-99

AUTHOR(S): NE NERWI TYPE(S): PM CATEGORIES: O

SOURCE(S): NE NERWI COST: 0.00 P LEVEL: 2 COPYRIGHT:

SUBJECT AREAS:

EQUIPMENT (PLANT) OPERATIONS (WASTEWATER)

REMARKS AND ABSTRACT:

(NO. 1)

PICTURES OF EQUIPMENT USED IN THE WASTEWATER TREATMENT FIELD.

EPAW00136

ENVIRONMENTAL GUIDEBOOK FOR CONSTRUCTION DATE: 76-99

AUTHOR(S): CO BOR TYPE(S): PM CATEGORIES: E P S

SOURCE(S): CC BCR GPO COST: 1.00 P LEVEL: 2 COPYRIGHT:

SUBJECT AREAS:

WATER QUALITY PLANT CONSTRUCTION

REMARKS AND ABSTRACT:

(STOCK NO. 2403 00090) 61PP.

GIVES IDEAS AND SUGGESTIONS TO INDIVIDUAL WORKERS AND SUPERVISORS ABOUT ENVIRONMENTAL PRACTICES THEY CAN APPLY WHILE PERFORMING EVERYDAY DUTIES. CHAPTER ON WATER QUALITY CONTROL.

Exhibit 18. Page from *Identification Number Master Report*

REPRESENTATIVE USE OF *TYPE INDEX*

Question:

I need 35mm slide material on plant operations which can be purchased for under $100.00. How do I find it?

Search Strategy:

Step 1. Refer to the *Code Definition Table* to determine the proper type code for 35mm slides. (See Exhibit 16, page 38).

Step 2. Use the *Type Index*, searching under the proper media code, to review all training materials with a slide format which relate to plant operations. Note the ID's for all training materials meeting these selection criteria. (See Exhibit 19, page 42).

Step 3. Use the *Identification Number Master Report* to review the complete record for each training material for final selection, selecting those with a purchase price under $100.00. (See Exhibit 20, page 43).

TYPE INDEX

TYPE:

SL

ID NUMBER: EPAW00538 ATOMIC ABSORPTION
CATEGORY: M DATE: 69-00 LEVEL: 3 AUTHOR: EPA WPO

ID NUMBER: EPAW00539 CHEMICAL OXYGEN DEMAND
CATEGORY: M S DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00540 DISSOLVED OXYGEN DETERMINATION
CATEGORY: M DATE: 71-00 LEVEL: 1 AUTHOR: EPA

ID NUMBER: EPAW00541 DETERMINATION OF PHENOLICS
CATEGORY: M DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00542 DETERMINATION OF PHOSPHORUS
CATEGORY: M DATE: 71-00 LEVEL: 2 AUTHOR: EPA

ID NUMBER: EPAW00543 LETS INVENTORY YOUR CHLORINE HANDLING PRACTICES ←
CATEGORY: O S DATE: 70-00 LEVEL: 1 AUTHOR: EPA

ID NUMBER: EPAW00544 DISSOLVED OXYGEN ANALYSIS ACTIVATED SLUDGE CONTROL TESTING ←
CATEGORY: M O S DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00545 OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 1
CATEGORY: M O S DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00546 OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 2
CATEGORY: M C S DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00547 OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 3
CATEGORY: M DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00548 UPGRADING BIOLOGICAL TREATMENT
CATEGORY: C O S DATE: 69-00 LEVEL: 3 AUTHOR: EPA WPO

ID NUMBER: EPAW00549 ULTIMATE DISPOSAL TO THE ENVIRONMENT
CATEGORY: D S DATE: 71-00 LEVEL: 3 AUTHOR: EPA

ID NUMBER: EPAW00550 GRAPHICAL ANALYSIS VIS NORMAL PROBABILITY PAPER
CATEGORY: M O S T DATE: 71-00 LEVEL: 3 AUTHOR: EPA

Exhibit 19. Page from *Type Index*

EPAW00542 DATE: 71-00

DETERMINATION OF PHOSPHORUS
AUTHOR(S): EPA
SOURCE(S): EPA2 COST: 0.00 R TYPE(S): PM SL AC LEVEL: 2 CATEGORIES: M COPYRIGHT:
SUBJECT AREAS:
PHOSPHATES
REMARKS AND ABSTRACT:
UNIT: XT-44, 15 MIN TAPE, 65 SL, SCRIPT, QUIZ, KEY.
PRESENTS THE REASONS FOR DETERMINING PHOSPHORUS, AN EXPLANATION OF PHOSPHORUS TERMINOLOGY, AND THE OFFICE OF WATER PROGRAMS ANALYTICAL PROCEDURES. DISCUSSION OF PROCEDURE INCLUDES BASIC CHEMISTRY INVOLVED, SENSITIVITY RANGE, SAMPLE COLLECTION AND PRESERVATION, FILTRATION AND DIGESTION, PH, REAGENT PREPARATION, COLOR DEVELOPMENT AND SPECTROPHOTOMETRIC DETERMINATION, CARE OF GLASSWARE AND POSSIBLE INTERFERENCES.

EPAW00543 DATE: 70-00

LETS INVENTORY YOUR CHLORINE HANDLING PRACTICES
AUTHOR(S): EPA
SOURCE(S): EPA2 COST: 0.00 R TYPE(S): PM SL AC LEVEL: 1 CATEGORIES: O S COPYRIGHT:
SUBJECT AREAS:
CHLORINE
REMARKS AND ABSTRACT:
UNIT: XT-35, 32 MIN TAPE, 90 SL, SCRIPT.
DISCUSSION ON HANDLING ELEMENTAL CHLORINE. PRINCIPLE DIVISIONS OF INFORMATION ARE: PHYSICAL AND CHEMICAL CHARACTERISTICS OF CHLORINE, SAFETY REQUIREMENTS FOR SIX SEGMENTS OF TYPICAL CHLORINE FEED SYSTEMS, CHLORINE EMERGENCY PROCEDURES, IN-PLANT OPERATING PROCEDURES FOR SAFE HANDLING OF CHLORINE (15 ITEMS), AND SOURCES OF ADDITIONAL INFORMATION.

EPAW00544 DATE: 71-00

DISSOLVED OXYGEN ANALYSIS ACTIVATED SLUDGE CONTROL TESTING
AUTHOR(S): EPA
SOURCE(S): EPA2 COST: 0.00 R TYPE(S): PM SL AC LEVEL: 3 CATEGORIES: M O S COPYRIGHT:
SUBJECT AREAS:
ACTIVATED SLUDGE DISSOLVED OXYGEN SLUDGE CONDITIONING
REMARKS AND ABSTRACT:
UNIT: XT-43, 34 MIN TAPE, 73 SL, SCRIPT, SUPPL: LUDZACK, "DISSOLVED OXYGEN TESTING PROCEDURE," LESSON PLAN.
RAPID AND VALID TECHNIQUES ARE DESCRIBED FOR CONTROL OF THE ACTIVATED SLUDGE TREATMENT PROCESS USING ELECTRONIC MEASUREMENT OF DO AND DO CHANGES. SAMPLE DATA ARE DISCUSSED FOR INTERPRETATION OF SLUDGE CONDITION IN RESPONSE TO STABILIZATION, FEED, LOAD RATIO OR CONDITIONS. INFORMATION OBTAINABLE WITHIN 20 MINUTES PROVIDES SUGGESTED CORRECTIVE ACTION IN TIME TO UPGRADE EFFLUENT QUALITY.

EPAW00545 DATE: 71-00

OPERATIONAL CONTROL TESTS FOR ACTIVATED SLUDGE PROCESS PART 1
AUTHOR(S): EPA
SOURCE(S): EPA2 COST: 0.00 R TYPE(S): PM SL AC LEVEL: 3 CATEGORIES: M O S COPYRIGHT:
SUBJECT AREAS:
ACTIVATED SLUDGE PHYSICAL ANALYSIS PROCESS CONTROL
REMARKS AND ABSTRACT:
UNIT: XT-40, 16 MIN TAPE, 50 SL, SCRIPT.
PART ONE OF A THREE-PART LESSON SERIES ON OPERATIONAL CONTROL TESTS FOR THE ACTIVATED SLUDGE PROCESS. ENTITLED "OBSERVATIONS," THIS FIRST PART IS CONCERNED WITH THE ACCURATE READING OF METERS AND WITH THE VISUAL OBSERVATIONS TO BE MADE BOTH AT THE AERATOR (FOAM CHARACTERISTICS, SLUDGE COLOR AND ODOR) AND AT THE FINAL CLARIFIERS (CLARITY, EVIDENCES OF BULKING AND OF SEPTIC SOLIDS). PROVISIONAL INTERPRETATIONS TO BE MADE OF THESE VISUAL OBSERVATIONS ARE PRESENTED, AND ALSO A DETAILED DISCUSSION OF THE EFFECTIVE USE OF A SLUDGE BLANKET FINDER.

Exhibit 20. Page from *Identification Number Master Report*

REPRESENTATIVE USE OF *AUTHOR INDEX*

Question:

I understand that H. Jones has written something about chemical recovery in paper mills. How can I review his material?

Search Strategy:

Step 1. Use the *Author Index*, searching under Jones, H. to review training materials meeting this selection criterion and note the ID's. (See Exhibit 21, page 45).

Step 2. Use the *Identification Number Master Report* to review the complete record for each training material for final selection. (See Exhibit 22, page 46).

JOHNSTON R L
ID NUMBER: EPAW00439 LAGOON FOR DOMESTIC SEWAGE (OUT OF PRINT)
CATEGORIES: TYPE: PM DATE: 76-99 LEVEL:

JOLLY C
ID NUMBER: EPAW01813 ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN THE OCEAN
CATEGORIES: L E TYPE: PM DATE: 75-04 LEVEL: 1

ID NUMBER: EPAW01835 ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN INLAND WATERS
CATEGORIES: L E TYPE: PM DATE: 75-06 LEVEL: 1

JONES H R
ID NUMBER: EPAW01633 POLLUTION CONTROL IN THE DAIRY INDUSTRY
CATEGORIES: D M O TYPE: PM DATE: 74-00 LEVEL: 3

ID NUMBER: EPAW01634 POLLUTION CONTROL IN MEAT POULTRY AND SEAFOOD PROCESSING
CATEGORIES: D M O TYPE: PM DATE: 74-00 LEVEL: 3

ID NUMBER: EPAW01637 POLLUTION CONTROL IN THE PETROLEUM INDUSTRY
CATEGORIES: D O M TYPE: PM DATE: 73-00 LEVEL: 3

ID NUMBER: EPAW01639 POLLUTION CONTROL AND CHEMICAL RECOVERY IN THE PULP AND PAPER INDUSTRY ←
CATEGORIES: D O M TYPE: PM DATE: 73-00 LEVEL: 3

ID NUMBER: EPAW01640 POLLUTION CONTROL IN THE TEXTILE INDUSTRY
CATEGORIES: D O M TYPE: PM DATE: 73-00 LEVEL: 3

ID NUMBER: EPAW01641 WASTE DISPOSAL CONTROL IN THE FRUIT AND VEGETABLE INDUSTRY
CATEGORIES: D O M TYPE: PM DATE: 73-00 LEVEL: 3

JORGENSEN S E
ID NUMBER: EPAW00428 ECOLOGICAL MODELLING
CATEGORIES: T TYPE: PM DATE: 76-00 LEVEL: 3

JOSEPHS P J
ID NUMBER: EPAW00716 CHEMISTRY AND THE ENVIRONMENT
CATEGORIES: T TYPE: PM DATE: 67-00 LEVEL: 3

JUVET R S
ID NUMBER: EPAW02134 BASIC RELATIONSHIPS AND INSTRUMENTATION BASIC GAS CHROMATOGRAPHY
CATEGORIES: M T TYPE: PM FS SL AC DATE: 76-99 LEVEL: 3

ID NUMBER: EPAW02135 COLUMN ITS MAKE UP AND USE
CATEGORIES: M T TYPE: PM FS SL AC DATE: 76-99 LEVEL: 3

Exhibit 21. Page from *Author Index*

EPAW01638

WASTEWATER CLEANUP EQUIPMENT
AUTHOR(S): NOYES
SOURCE(S): NOYES
SUBJECT AREAS:
EQUIPMENT (PLANT)
REMARKS AND ABSTRACT:
2ND EDITION; 372PP.
THIS BOOK GIVES BASIC TECHNICAL INFORMATION AND SPECIFICATIONS PERTAINING TO COMMERCIAL EQUIPMENT CURRENTLY AVAILABLE FROM EQUIPMENT MANUFACTURERS. ALTOGETHER THE PRODUCTS OF 94 COMPANIES ARE REPRESENTED. SUPPLIES TECHNICAL DATA, DIAGRAMS, PICTURES, SPECIFICATIONS AND OTHER INFORMATION ON COMMERCIAL EQUIPMENT USEFUL IN WATER POLLUTION CONTROL AND SEWAGE TREATMENT.

COST: 36.00 P
INDUSTRIAL WASTES
TYPE(S): PH
LEVEL: 3
CATEGORIES: D O M
COPYRIGHT:
DATE: 73-00

EPAW01639

POLLUTION CONTROL AND CHEMICAL RECOVERY IN THE PULP AND PAPER INDUSTRY
AUTHOR(S): JONES H R
SOURCE(S): NOYES
SUBJECT AREAS:
COSTS
REMARKS AND ABSTRACT:
337PP.
MANY EFFLUENT WASTES FROM PAPER MILLS ARE BIODEGRADABLE, BUT TREATMENT COSTS ARE INCREASING, EFFLUENT DISCHARGE REQUIREMENTS ARE BECOMING MORE STRINGENT, AND URBANIZATION INCREASINGLY LIMITS THE AVAILABILITY OF LAND. ECONOMIC CONTROL PROCEDURES APPLIED BY THE INDUSTRY, THEREFORE, FORM AN ESSENTIAL PART OF THE POLLUTION CONTROL PROCEDURES. VITAL DATA FROM GOVERNMENT SOURCES IS GIVEN. IMPORTANT PROCESSES ARE INTERPRETED AND EXPLAINED BY 54 U.S. PATENTS.

COST: 36.00 P
ENVIRONMENTAL CONTROL
INDUSTRIAL WASTES
TYPE(S): PH
LEVEL: 3
CATEGORIES: D O M
COPYRIGHT:
DATE: 73-00

EPAW01640

POLLUTION CONTROL IN THE TEXTILE INDUSTRY
AUTHOR(S): JONES H R
SOURCE(S): NOYES
SUBJECT AREAS:
INDUSTRIAL WASTES
REMARKS AND ABSTRACT:
324PP.
THE MAJOR POLLUTION PROBLEMS CONFRONTED BY THE TEXTILE INDUSTRY ARE WATER POLLUTION PROBLEMS. SOLUTIONS TO THESE PROBLEMS ARE BASED ON VARIOUS GOVERNMENT SURVEYS AND REPORTS WITH PRACTICAL EXAMPLES DETAILED FROM LATE U.S. PATENTS.

COST: 36.00 P
TYPE(S): PH
LEVEL: 3
CATEGORIES: D O M
COPYRIGHT:
DATE: 73-00

EPAW01641

WASTE DISPOSAL CONTROL IN THE FRUIT AND VEGETABLE INDUSTRY
AUTHOR(S): JONES H R
SOURCE(S): NOYES
SUBJECT AREAS:
WASTEWATER DISPOSAL
REMARKS AND ABSTRACT:
261PP.
BASED ON AUTHORITATIVE GOVERNMENT REPORTS AND SURVEYS. ATTEMPTS TO XLARIFY THE WAYS AND MEANS OPEN TO THE FOOD PROCESSOR WHO MUST KEEP HIS POLLUTING WASTES DOWN TO A MINIMUM.

COST: 36.00 P
INDUSTRIAL WASTES
TYPE(S): PH
LEVEL: 3
CATEGORIES: D O M
COPYRIGHT:
DATE: 73-00

Exhibit 22. Page from *Identification Number Master Report*

REPRESENTATIVE USE OF *SUBJECT INDEX*

Question:

How can I review all training materials which discuss maintenance procedures for centrifugal pumps?

Search Strategy:

Step 1. Review the *Thesaurus* to determine which subject terms to use. (See Exhibit 23, page 48).

Step 2. Using the term "centrifugal pumps," review the training materials found in the *Subject Index*, noting the ID's. (See Exhibit 24, page 49).

Step 3. Using the *Identification Number Master Report*, review the total record for final selection. Pay particular attention to other subjects assigned, which may direct you to other materials. (See Exhibit 25, page 50).

Step 4. For this example, note that the subject terms "maintenance" and "lubrication" appear as additional subjects in the records reviewed using the *ID Report*. Therefore, return to the *Subject Index* using these two new terms and note the ID's of pertinent training materials. (See Exhibit 26, page 51).

Step 5. Return to the *ID Report* to review the additional records and make final selections. (See Exhibit 27, page 52).

CASE STUDIES

CAST IRON PIPES

CATHODIC PROTECTION
    SEE ALSO: CORROSION

CATION ADSORPTION
    SEE ALSO: ION EXCHANGE

CATION EXCHANGE
    USE: ION EXCHANGE

CENTRIFUGAL PUMPS ←

CENTRIFUGATION

CERTIFICATION PROGRAMS
    SEE ALSO: CURRICULUM DEVELOPMENT

CHEMICAL ANALYSIS
    SEE ALSO: ANALYTICAL TECHNIQUES, LABORATORY SKILLS

CHEMICAL OXYGEN DEMAND
    SEE ALSO: BIOCHEMICAL OXYGEN DEMAND

CHEMICAL PRECIPITATION

CHEMICAL PROPERTIES

CHEMICAL REACTIONS

CHEMICAL SPILLS
    USE: SPILLS (CHEMICAL)

Exhibit 23. Page from *Thesaurus*

CAST IRON PIPES
ID NUMBER: EPAW02093 AMERICAN NATIONAL STANDARD FOR FLANGED CAST IRON AND DUCTILE IRON PIPE WITH
CATEGORIES: D TYPE: PM LEV: 2 AUTH: AWWA DATE: 75-00

CATHODIC PROTECTION
SEE ALSO: CORROSION

ID NUMBER: EPAW00050 AWWA STANDARD FOR LIQUID SODIUM SILICATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 58-00

ID NUMBER: EPAW00053 AWWA STANDARD FOR TRISODIUM PHOSPHATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 66-00

ID NUMBER: EPAW00054 AWWA STANDARD FOR CAUSTIC SODA
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 75-00

ID NUMBER: EPAW00055 AWWA STANDARD FOR SODIUM HEXAMETAPHOSPHATE
CATEGORIES: D M S TYPE: PM LEV: 2 AUTH: AWWA DATE: 67-00

ID NUMBER: EPAW00875 MANUAL ON WATER
CATEGORIES: M TYPE: PM LEV: 3 AUTH: ASTM DATE: 69-05

ID NUMBER: EPAW01790 WATER SUPPLY AND WASTE DISPOSAL
CATEGORIES: D M T TYPE: PM LEV: 3 AUTH: HARDENBERGH W A DATE: 50-00

ID NUMBER: EPAW01862 METAL MATERIALS PROGRAMMED INSTRUCTION MANUAL
CATEGORIES: O TYPE: PM LEV: 1 AUTH: TECH PUBL DATE: 73-12

ID NUMBER: EPAW01976 CENTRILINE PROCESS
CATEGORIES: C O TYPE: MP LEV: 2 AUTH: RAYMOND INTERNATIONAL DATE: 76-99

CATION ADSORPTION
SEE ALSO: ION EXCHANGE

CATION EXCHANGE
USE: ION EXCHANGE

CENTRIFUGAL PUMPS
ID NUMBER: EPAW00271 PUMPS CENTRIFUGAL PUMPS
CATEGORIES: O TYPE: PM LEV: 1 AUTH: DUPONT DATE: 67-00

ID NUMBER: EPAW00491 STUDY GUIDE FOR WATER PLANT OPERATORS
CATEGORIES: E O TYPE: PM LEV: 1 AUTH: FL WPCOA DATE: 60-00

Exhibit 24. Page from *Subject Index*

EPAW00271
PUMPS CENTRIFUGAL PUMPS DATE: 67-00
AUTHOR(S): DUPONT TYPE(S): PM CATEGORIES: O
SOURCE(S): DUPONT COST: 14.50 P LEVEL: 1 COPYRIGHT: C
SUBJECT AREAS:
MAINTENANCE CENTRIFUGAL PUMPS LUBRICATION
REMARKS AND ABSTRACT:
COURSE NO. 119, VOL. I THRU VI, APPROX 200PP COMPLETE STE. 9 HRS. AVERAGE INSTRUCTION TIME.
INCLUDES: FLOW THROUGH PUMP; MECHANICAL AND PACKING SEALS; SEAL FLUSH; PARTS OF AND TYPES OF IMPELLERS; DISCHARGE PRESSURE VERSUS FLOW; POWER REQUIREMENTS VERSUS FLOW; EFFECT OF SPECIFIC GRAVITY ON POWER REQUIREMENTS; MULTI-STAGE OPERATION; METHODS OF PRIMING CENTRIFUGAL PUMPS; OPERATING CHARACTERISTICS OF SELF-PRIMING CENTRIFUGAL PUMPS; TYPES OF OIL LUBRICATION; GREASE LUBRICATED BEARING; BEARING HOUSING TEMPERATURES; AND CAVITATION AND GASSING OF CENTRIFUGAL PUMPS.

EPAW00272
PUMPS POSITIVE DISPLACEMENT PUMPS DATE: 76-99
AUTHOR(S): DUPONT TYPE(S): PM CATEGORIES: O
SOURCE(S): DUPONT COST: 10.75 P LEVEL: 1 COPYRIGHT:
SUBJECT AREAS:
POSITIVE DISPLACEMENT PUMPS ROTARY PUMPS
REMARKS AND ABSTRACT:
NO. 12; 5 1/2 HRS. AVERAGE INSTRUCTION TIME.
THE IDENTIFICATION OF RECIPROCATING POSITIVE DISPLACEMENT PUMPS BY TYPE OF POWER END, DISPLACING SOLID, NUMBER OF PUMPING UNITS, TYPE OF PUMPING UNIT, AND VALVE GEAR; AND THE IDENTIFICATION OF THE COMMON TYPES OF ROTARY POSITIVE DISPLACEMENT PUMPS BY TYPE OF DISPLACING SOLID. THE OPERATING PRINCIPLES OF BOTH TYPES OF PUMPS ARE APPLIED TO ELEMENTARY TROUBLESHOOTING.

EPAW00273
SCAFFOLDS DATE: 76-99
AUTHOR(S): DUPONT TYPE(S): PM CATEGORIES: O
SOURCE(S): DUPONT COST: 3.50 P LEVEL: 1 COPYRIGHT:
SUBJECT AREAS:
EQUIPMENT (PLANT) SAFETY (MECHANICAL) EQUIPMENT (CONSTRUCTION)
REMARKS AND ABSTRACT:
NO. 57; 1 HRS. AVERAGE INSTRUCTION TIME.
MINIMUM REQUIREMENTS FOR A STANDARD SCAFFOLD: HAND RAILS, KNEE RAILS, TOE BOARDS, DECK PLANKS, PLANK CLEATS, PLANK OVERHAND, PLANKS TIED DOWN, DIAGONAL BRACING, HORIZONTAL MEMBERS, BASES, LADDERS, HEIGHT OF HAND RAIL, LOOSE COUPLINGS, AND RIGHTSIDE-UP COUPLINGS.

EPAW00274
SKETCHING FIELD DATE: 76-99
AUTHOR(S): DUPONT TYPE(S): PM CATEGORIES: O O
SOURCE(S): DUPONT COST: 23.75 P LEVEL: 2 COPYRIGHT:
SUBJECT AREAS:
DRAFTING EQUIPMENT (PLANT)
REMARKS AND ABSTRACT:
NO. 27; 15 HRS. AVERAGE INSTRUCTION TIME.
MAKING FREEHAND SKETCHES, ORTHOGRAPHIC AND PICTORIAL, OF MACHINERY AND EQUIPMENT. HIGHLIGHTS INCLUDE TECHNIQUES FOR DRAWING STRAIGHT LINES, CURVED LINES, AND CIRCLES; SKETCHING TWO- AND THREE-VIEW ORTHOGRAPHIC PROJECTIONS; FREEHAND LETTERING AND DIMENSIONING PRACTICES; AND FREEHAND SKETCHES IN ISOMETRIC AND OBLIQUE PROJECTION.

Exhibit 25. Page from *Identification Number Master Report*

LOGISTICS

USE: MATERIAL HANDLING

LUBRICATION

SEE ALSO: PREVENTIVE MAINTENANCE

ID NUMBER: EPAW00207 COMPRESSED AIR SYSTEMS CENTRIFUGAL COMPRESSORS
CATEGORIES: 0 TYPE: PM LEV: 2 AUTH: DUPONT DATE: 76-99

ID NUMBER: EPAW00208 COMPRESSED AIR SYSTEMS RECIPROCATING COMPRESSORS
CATEGORIES: 0 TYPE: PM LEV: 1 AUTH: DUPONT DATE: 75-99

ID NUMBER: EPAW00228 KNOW YOUR MOTOR OIL
CATEGORIES: 0 TYPE: PM LEV: 1 AUTH: DUPONT DATE: 76-99

ID NUMBER: EPAW00271 PUMPS CENTRIFUGAL PUMPS
CATEGORIES: 0 TYPE: PM LEV: 1 AUTH: DUPONT DATE: 67-00

ID NUMBER: EPAW00528 MECHANICAL PACKING
CATEGORIES: 0 TYPE: PM LEV: 2 AUTH: POWER MAG DATE: 76-99

ID NUMBER: EPAW00531 LUBRICANTS
CATEGORIES: 0 TYPE: PM LEV: 2 AUTH: POWER MAG DATE: 76-99

ID NUMBER: EPAW00911 ELECTRIC MOTORS SELECTION PROTECTION DRIVES
CATEGORIES: 0 TYPE: OT PM SL LEV: 1 AUTH: AAVIM DATE: 72-00

ID NUMBER: EPAW00918 SMALL ENGINES CARE OPERATION MAINTENANCE AND REPAIR VOLUME I
CATEGORIES: 0 TYPE: PM OT SL LEV: 2 AUTH: AAVIM DATE: 75-00

ID NUMBER: EPAW00919 SMALL ENGINES CARE OPERATION MAINTENANCE AND REPAIR VOLUME II
CATEGORIES: 0 TYPE: OT PM LEV: 2 AUTH: AAVIM DATE: 74-00

ID NUMBER: EPAW00922 FUELS AND LUBRICANTS SELECTING AND STORING
CATEGORIES: 0 TYPE: OT PM SL LEV: 2 AUTH: AAVIM DATE: 73-00

ID NUMBER: EPAW01941 LUBRICATION PROGRAMMED INSTRUCTION MANUAL
CATEGORIES: 0 TYPE: PM LEV: 1 AUTH: TECH PUBL DATE: 75-02

ID NUMBER: EPAW01949 BEARINGS PROGRAMMED INSTRUCTION MANUAL
CATEGORIES: 0 TYPE: PM LEV: 1 AUTH: TECH PUBL DATE: 74-09

Exhibit 26. Page from *Subject Index*

ID MASTER REPORT

EPAW01841 DATE: 75-02

LUBRICATION PROGRAMMED INSTRUCTION MANUAL
AUTHOR(S): TECH PUBL
SOURCE(S): TECH PUBL COST: 20.50 P TYPE(S): PM LEVEL: 1 CATEGORIES: O COPYRIGHT: C
SUBJECT AREAS:
EQUIPMENT (PLANT) LUBRICATION SELF PACED INSTRUCTION MAINTENANCE
REMARKS AND ABSTRACT:
NO. 302-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01842 DATE: 74-04

ELEMENTS OF MECHANICS PROGRAMMED INSTRUCTION MANUAL
AUTHOR(S): TECH PUBL
SOURCE(S): TECH PUBL COST: 20.50 P TYPE(S): PM LEVEL: 1 CATEGORIES: O COPYRIGHT: C
SUBJECT AREAS:
EQUIPMENT (PLANT) MAINTENANCE POWER LOSS SELF PACED INSTRUCTION
REMARKS AND ABSTRACT:
NO. 301-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01843 DATE: 74-06

ELECTRICAL TROUBLESHOOTING PROGRAMMED INSTRUCTION MANUAL
AUTHOR(S): TECH PUBL
SOURCE(S): TECH PUBL COST: 20.50 P TYPE(S): PM LEVEL: 1 CATEGORIES: O COPYRIGHT: C
SUBJECT AREAS:
EQUIPMENT (PLANT) AUTOMATIC CONTROL ELECTRIC POWER MAINTENANCE
SELF PACED INSTRUCTION TROUBLESHOOTING
REMARKS AND ABSTRACT:
NO. 210-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAUER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

EPAW01844 DATE: 74-12

A C CONTROL EQUIPMENT PROGRAMMED INSTRUCTION MANUAL
AUTHOR(S): TECH PUBL
SOURCE(S): TECH PUBL COST: 20.50 P TYPE(S): PM LEVEL: 1 CATEGORIES: O COPYRIGHT: C
SUBJECT AREAS:
EQUIPMENT (PLANT) ELECTRIC POWER AUTOMATIC CONTROL MAINTENANCE
SELF PACED INSTRUCTION
REMARKS AND ABSTRACT:
NO. 209-TEN 16PP. SELF-INSTRUCTIONAL LESSONS, INCLUDING: PROGRAMMED EXERCISES, SELF-CHECK QUIZES, SUPPL. MATERIALS. FOR IN-PLANT TRAINING OF MAINTENANCE CRAFTSMEN. ADJUNCTIVELY PROGRAMMED TRAINING UNITS WRITTEN TO SUPPLEMENT TRAINEES' ON-THE-JOB EXPERIENCES. FIRST LINE SUPERVISOR ADMINISTERS TRAINING IN CAPACITY OF "COURSE MANAGER." INSTRUCTOR'S MATERIALS FURNISHED FREE WITH EACH UNIT.

Exhibit 27. Page from *Identification Number Master Report*

Selective Bibliographies

DEFINITION AND CONDITIONS

The primary design approach of IRIS is centered on supplying a package of information products that allows you to independently determine what instructional resources are available to meet a particular need. However, there are certain instances when the standard information products will not meet the total need and a selective bibliography is necessary. There are three general areas where a selective bibliography may be useful:

1. Widespread Dissemination of a Select Group of Resources

   If a user, having determined that a certain number of references is valid, needs to make this list of references widely available, a selective bibliography can be generated, duplicated, and easily disseminated.

2. Recurring Information Request

   In the event that the same information inquiry is required every time IRIS is updated, the characteristics of the inquiry or "search" can be established and a selective bibliography can be generated after each update.

3. The Characteristics of the Inquiry are Too Complex to be Easily Satisfied by the Standard Information Products

   In certain unusual circumstances, the user will determine that the inquiry is so comprehensive that the information products are inadequate. In this event the user can request that a selective bibliography be generated meeting the specified criteria.

COMPLETING A SELECTIVE BIBLIOGRAPHY SEARCH REQUEST FORM

Search Definition

To obtain a meaningful selective bibliography from IRIS, it is imperative that the user clearly understand and state his objective. Therefore, describe exactly what training materials you are seeking, and the purpose for which they will be used. Specificially include any subjects, authors, or sources to be included in the search (but do not worry about using the same terminology as IRIS as this is not important).

Example - "I need to instruct beginning operators on basic laboratory skills. Emphasis will be on introductory analytical techniques (chemical, biological, physical). Students of varying abilities will take the course, so I prefer self-paced instruction. Students, upon completing the course, should be knowledgeable in basic laboratory equipment and procedures, laboratory safety, sampling and record keeping. The course will last 2 weeks, or 60 hours."

Analysis - Requestor does not concentrate on <u>how</u> the search should be conducted but rather, what the <u>objectives</u> of the search should be. This is the correct procedure.

Example - "I need materials on laboratory techniques. Please include laboratory skills, instrumentation (laboratory), operations, water quality, and analytical techniques."

Analysis - By concentrating on the search strategy rather than the search objective, the user failed to define the purpose, course length, audience, orientation, or application. Accordingly, potentially valuable material will be missed (e.g., laboratory safety, record keeping, chemical and biological analysis), and meaningless material selected.

Search Restrictions

If you only have access to certain AV equipment, if students are all at a specific education level, if your course is to be applications oriented, if the topic is meaningful only within a particular date range, you may wish to enter specific search restrictions. To do so, simply enter the selection specifications in the appropriate box. Under media type(s), for example, if you are interested only in printed material, and slides, enter PM SL. Examples follow:

Example -

(X) Media Type(s) SL AC	Only slide/tape materials will be selected.
(X) Categories 0	Only materials dealing with operations will be selected.
(X) Education Level 1	Only materials dealing with Level 1 will be selected.
(X) Years: Beginning Year 1971	Through Ending Year To Present
Opt-Include undated**material	Yes X No

**Materials for 1971, 1972, 1973, 1974, 1975, and 1976 will be selected. Moreover, "undated" materials entered into IRIS during those years will also be selected.

NOTE: All Search Restrictions are simply that. They refine the search strategy specified in Step I, not overlay it. All the subjects listed in Step I and all the authors and sources will be selected; however, the final materials printed on the bibliography will be only those which also meet the search restrictions.

Bibliography Format

The training materials selected from IRIS for your selective bibliography can be arranged several ways -- by ID, by title, by author, and so on. Depending on your objective, one arrangement may be preferable to another. If, for example, you had a selective bibliography on the source AWWA, it would be meaningless to format the report by source. An arrangement by date, or by title would be preferable. If you have developed a training material and reference IRIS materials throughout that material by IRIS ID, then your selective bibliography supporting that course material should be arranged by ID order to facilitate access. Only one format is permissible for a search.

Name and Address

To ensure the highest quality possible, each requestor is contacted by telephone prior to the execution of the search. Every aspect of the search is discussed and refined; therefore, it is important that Section IV be legibly completed.

Pre-Selected Set of ID's

The most successful IRIS search is normally the one you do yourself, using the IRIS products. The reason for this is that you can set up your

selection criteria, search the system, and browse before selecting some materials and rejecting others. If this approach is used, and you need a 'prepared' bibliography for distribution, a simple approach is to list all the ID's for the materials selected and submit this list as your search request. This approach ensures a successful selective bibliography formated in the manner most suitable for your needs. The request forms are found on pages 58 and 59. Sample requests are found on pages 60, 62, 64, 66 and 68, along with the resultant selective IRIS bibliography.

SEARCH REQUEST FORM FOR SELECTIVE BIBLIOGRAPHY

Procedure for Obtaining a Selective IRIS Bibliography

Fill out the attached request form using the attached tables:

-*Thesaurus*
-*Source Index*
-*Code Definition Chart*

Mail to:

IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268

Any questions concerning the form and its completion should be directed to:

Ms. Phyllis Branson
IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268
Telephone: 513-684-7501

Please allow a minimum of five working days from receipt of request.

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition
In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

II. Search Restrictions (Optional)
Restrict this search to the following:

( ) Type(s):

( ) Categories:

( ) Educational Level:

( ) Years: Beginning Year _____ Through Ending Year _____
Opt: Include undated** material: Yes _____ No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format
Your bibliography can be listed several ways. Please indicate your preference below:

( ) ID (no secondary sort)
( ) Title (no secondary sort)
( ) 1st Author (secondary sort by date)
( ) 1st Source (secondary sort by date)
( ) Date (secondary sort by title)

IV. Please Complete the Following:

Your Name: _____ Telephone: _____

Mailing Address: _____

_____

*If you want a selective bibliography based on a pre-selected group of ID's, complete Sections III, IV and V.

V. Selective Bibliography based on Pre-Selected Set of ID's

If you wish to supply the specific identification numbers for the training material records to be inclusively selected for this bibliography, type the ID(s) below. Do not complete Sections I and II of page 1.

Identification numbers:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

Preparing a one week short course for operators on filtration. Operators need background of process, various filters, how they work, theoretical discussion of process.

Subject: Filtration

II. Search Restrictions (Optional)

Restrict this search to the following:

( ) Type(s):

(X) Categories: M,O

(X) Educational Level: 2

( ) Years: Beginning Year _____ Through Ending Year _____
Opt: Include undated** material: Yes _____ No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

( ) ID (no secondary sort)
(X) Title (no secondary sort)
( ) 1st Author (secondary sort by date)
( ) 1st Source (secondary sort by date)
( ) Date (secondary sort by title)

SEARCH STRATEGY:
SUBJECT-FILTRATION LEVEL-2 CATEGORY-M/O

SPECIAL BIBLIOGRAPHIC REPORT

AWWA STANDARD FOR FILTERING MATERIAL — DATE: 72-00
AUTHOR(S): AWWA
SOURCE(S): AWWA — COST: 4.00 P — TYPE(S): PM — LEVEL: 2 — CATEGORIES: D M O — ID NUMBER: EPAW00040 — COPYRIGHT: C
SUBJECT AREAS:
STANDARDS — ACTIVATED CARBON — FILTRATION
REMARKS AND ABSTRACT:
RPT. NO. 42100 (8100-72) 20 PP.
COVERS GRAVEL, SAND, ANTHRACITE AND ACTIVATED CARBON FILTER MATERIALS AND PLACEMENT OF THE MATERIALS.

READING ASSIGNMENTS AND EXERCISES FOR WATER SYSTEM OPERATORS — DATE: 76-99
AUTHOR(S): MT BCHWO
SOURCE(S): MT BCHWO — COST: 2.00 P — TYPE(S): PM — LEVEL: 2 — CATEGORIES: E O S — ID NUMBER: EPAW00493 — COPYRIGHT:
SUBJECT AREAS:

MATHEMATICS	CHEMISTRY	BACTERIA	ELECTRIC POWER
OPERATIONS (WATER)	COAGULATION	FILTRATION	CHLORINATION
AERATION	CORROSION	MAINTENANCE	LABORATORY TESTS
SEDIMENTATION	HYDROLOGY	FLUORIDATION	SAFETY

REMARKS AND ABSTRACT:
GUIDE USED WITH NEW YORK MANUAL FOR WATER PLANT OPERATORS.

WASTEWATER TREATMENT SERIES C — DATE: 78-99
AUTHOR(S): NEIWPCC
SOURCE(S): NEIWPCC — COST: 0.00 R — TYPE(S): SL PM — LEVEL: 1 — CATEGORIES: O T — ID NUMBER: EPAW00592 — COPYRIGHT:
SUBJECT AREAS:

PRIMARY TREATMENT	SEDIMENTATION	PUMPS	SCREENING AND GRINDING
SLUDGE DEWATERING	ANALYTICAL TECHNIQUES	SECONDARY TREATMENT	CHEMICAL TREATMENT
FILTRATION	ACTIVATED SLUDGE	CHLORINATION	FLOW MEASUREMENT
STABILIZATION LAGOONS	TERTIARY TREATMENT	SAFETY	

REMARKS AND ABSTRACT:
ORDER SERIES C WITH ACCOMPANYING NARRATIVE, 100 SLIDES.
FOCUSING ON THE TECHNICAL ASPECTS OF WASTEWATER TREATMENT. IT FEATURES PRIMARY AND SECONDARY FACILITIES AND INCLUDES SEGMENTS ON THE TRAINING OF PLANT OPERATORS AND ON SAFETY.

WATER MANAGEMENT — DATE: 75-03
AUTHOR(S): POWER MAG — STRAUSS S D
SOURCE(S): POWER MAG — COST: 7.25 P — TYPE(S): PM — LEVEL: 2 — CATEGORIES: D E M P T — ID NUMBER: EPAW00525 — COPYRIGHT: C
SUBJECT AREAS:

ANALYTICAL TECHNIQUES	WATER SUPPLY	STEAM	FILTRATION
WATER QUALITY	SLUDGE CHARACTERISTICS	INDUSTRIAL WASTES	BACTERIA

REMARKS AND ABSTRACT:
129PP., AUTHOR: R. MARKS.
PART 1, "WATER", COVERS ALL PHASES OF WATER-SUPPLY PROBLEMS. PART 2, "WATER TREATMENT", COVERS BASIC TREATMENT OF CHEMISTRY, CHEMICALS, EQUIPMENT AND SYSTEMS FOR REMOVAL OF WATER IMPURITIES, WITH APPLICATION TO BOILER FEEDWATER REQUIREMENT OVER ENTIRE PRESSURE SPECTRUM OF STEAM GENERATION. PART 3, "WASTEWATER TREATMENT", TAKES A PRACTICAL LOOK AT POLLUTED INDUSTRIAL WALL, MICROBIOLOGY AND ANALYSIS; PRESENTS OVERVIEW OF METHODS FOR CORRECTION BEFORE DISCHARGE.

Exhibit 28. Special Bibliographic Report on Subject-Filtration

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition
In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

What is new in the area of disinfection training materials? Our state is updating training courses and materials in this area. My last list was through 1973.

Subject: Disinfection

II. Search Restrictions (Optional)
Restrict this search to the following:

( ) Type(s):

( ) Categories:

( ) Educational Level:

(X) Years: Beginning Year 1974 Through Ending Year 1976
Opt: Include undated** material: Yes X No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format
Your bibliography can be listed several ways. Please indicate your preference below:

( ) ID (no secondary sort)
( ) Title (no secondary sort)
( ) 1st Author (secondary sort by date)
( ) 1st Source (secondary sort by date)
(X) Date (secondary sort by title)

SEARCH STRATEGY:
DATE-1974/1975/UNDATED SUBJECT-DISINFECTION

SPECIAL BIBLIOGRAPHIC REPORT

74-00

VIRUS SURVIVAL IN WATER AND WASTEWATER SYSTEMS VOL VII WATER RESOURCES SYMPOSIA SERIES EPAW02031
AUTHOR(S): MALINA J F SAGIK B P TYPE(S): PM CATEGORIES: W T
SOURCE(S): UNIV TEX COST: 17.50 P LEVEL: 3 COPYRIGHT:
SUBJECT AREAS:
VIRUS ANALYTICAL TECHNIQUES TERTIARY TREATMENT DISINFECTION
REMARKS AND ABSTRACT:
294 PP.
FIVE SECTIONS DEAL, RESPECTIVELY, WITH VIRUS CONCENTRATION AND ENUMERATION TECHNIQUES, SURVIVAL OF VIRUSES IN AQUATIC AND SOIL SYSTEMS, EFFICIENCY OF VIRUS INACTIVATION, VIRUS INACTIVATION DURING ADVANCED TREATMENT AND BY DISINFECTION, AND VIRUS SURVIVAL IN TERRESTRIAL SYSTEMS.

75-00

AWWA STANDARD FOR HYPOCHLORITES EPAW00044
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT CHLORINATION DISINFECTION
REMARKS AND ABSTRACT:
B300-75 (NO. 42300) 9 PP.
THIS STANDARD COVERS CHLORINATED LIME, AND CALCIUM AND SODIUM HYPOSHLORITES FOR USE IN THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

75-09

DISINFECTION OF WATER AND WASTEWATER EPAW01432
AUTHOR(S): JOHNSON J D ANN ARBOR TYPE(S): PM CATEGORIES: W O P S T
SOURCE(S): ANN ARBOR COST: 27.50 P LEVEL: 3 COPYRIGHT: C
SUBJECT AREAS:
DISINFECTION
REMARKS AND ABSTRACT:
418 PP, 102 FIGURES, 75 TABLES.
COVERS ANALYTICAL, PHYSICAL AND CHEMICAL BASIS OF WATER AND WASTEWATER DISINFECTION.
SHOWS HOW COMPETITION BETWEEN THE CHEMICAL, PHYSICAL AND MICROBIOLOGICAL PROCESSES RESULT IN DISINFECTION EFFICIENCY.
FOR SANITARY ENGINEERS, ENVIRONMENTAL BIOLOGISTS, AND WATER AND WASTEWATER TREATMENT OPERATORS.

76-00

CHLORINATION OF WASTEWATER EPAW01373
AUTHOR(S): WPCF TYPE(S): PM CATEGORIES: D O S T
SOURCE(S): WPCF COST: LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
CHLORINATION DISINFECTION MANUALS BACTERIA
CHLORINE RESIDUAL VIRUS TASTE AND ODOR CORROSION
REMARKS AND ABSTRACT:
MOP RPT. NO.4; COST: TO BE DETERMINED.
THIS NEW EDITION WILL BE AVAILABLE IN 1976 AND DISCUSSES HISTORY AND CHEMISTRY OF CHLORINATION FOR BACTERIA AND VIRUS CONTROL; ODOR CONTROL; CORROSION CONTROL; AND CHEMICAL OXIDATION. SAFETY AND MAINTENANCE CONSIDERATIONS ARE INCLUDED. PRICE OF THE MANUAL WILL BE ANNOUNCED LATER.

Exhibit 29. Special Bibliographic Report on Subject-Disinfection

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition

In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

Is R. S. Juvet still writing materials on chromatography. I am updating my graduate course on this topic.

Author: Juvet, R. S.

Subject: Chromatography

II. Search Restrictions (Optional)

Restrict this search to the following:

( ) Type(s):

( ) Categories:

( ) Educational Level:

(X) Years: Beginning Year 1974 Through Ending Year 1976
Opt: Include undated** material: Yes X No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format

Your bibliography can be listed several ways. Please indicate your preference below:

( ) ID (no secondary sort)
( ) Title (no secondary sort)
(X) 1st Author (secondary sort by date)
( ) 1st Source (secondary sort by date)
( ) Date (secondary sort by title)

SPECIAL BIBLIOGRAPHIC REPORT

SEARCH STRATEGY:
AUTHOR-JUVET R S SUBJECT-CHROMATOGRAPHY

MCNAIR H M JUVET R S DATE: 76-99
BASIC RELATIONSHIPS AND INSTRUMENTATION BASIC GAS CHROMATOGRAPHY
SOURCE(S): COMM SKILL TYPE(S): PM FS SL AC CATEGORIES: M T
EPAW02134 COST: 90.00 P LEVEL: 3 COPYRIGHT:
SUBJECT AREAS:
CHROMATOGRAPHY
REMARKS AND ABSTRACT:
(NO. 2001), AUTHOR: S. P. CRAM; 43 FRAMES, 23 MIN.
INTRODUCES THE STUDENT TO THE MANY USES AND ADVANTAGES OF GAS CHROMATOGRAPHY. BASIC TERMS AND RELATIONSHIPS ARE ESTABLISHED. FUNDAMENTALS ARE TAUGHT WITH SIMPLE EXAMPLES. INSTRUMENT REQUIREMENTS ARE CAREFULLY CONSIDERED. A VARIETY OF APPLICATIONS ARE ILLUSTRATED WITH CHROMATOGRAMS.

MCNAIR H M JUVET R S DATE: 76-99
DETECTORS DESIGN AND USE
SOURCE(S): COMM SKILL TYPE(S): PM FS SL AC CATEGORIES: M
EPAW02136 COST: 85.00 P LEVEL: 3 COPYRIGHT:
SUBJECT AREAS:
CHROMATOGRAPHY
REMARKS AND ABSTRACT:
(NO. 2003); AUTHOR: S. P. CRAM; 49 FRAMES, 29 MIN.
DEALS WITH SYSTEMS TO MEASURE AND DETECT THE PASSAGE OF SAMPLE COMPONENTS. IT DESCRIBES IN DETAIL THREE BASIC DETECTORS, THERMAL CONDUCTIVITY, FLAME IONIZATION, AND ELECTRON CAPTURE COMPARING THEIR PERFORMANCE WITH CHROMATOGRAMS. SEVERAL SPECIALIZED DETECTOR SYSTEMS ARE DISCUSSED. A DETAILED SUMMARY GIVES THE STUDENT SIMPLE GUIDELINES FOR MAKING THE CORRECT CHOICE FOR HIS ANALYSIS.

MCNAIR H M JUVET R S DATE: 76-99
COLUMN ITS MAKE UP AND USE
SOURCE(S): COMM SKILL TYPE(S): PM FS SL AC CATEGORIES: M T
EPAW02135 COST: 105.00 P LEVEL: 3 COPYRIGHT:
SUBJECT AREAS:
CHROMATOGRAPHY
REMARKS AND ABSTRACT:
(NO. 2002), AUTHOR: S. P. CRAM; 48 FRAMES, 25 MIN.
THE PROPER CHOICE OF THE GAS CHROMATOGRAPHIC COLUMN IS THE SUBJECT OF THIS PROGRAM. IT CLEARLY DESCRIBES HOW THE COLUMN WORKS, OUTLINES CRITERIA FOR SELECTING THE PROPER COLUMN TYPE, LIQUID PHASE, AND SUPPORT, AND DEMONSTRATES WITH A SERIES OF CHROMATOGRAMS THE RELATIONSHIPS BETWEEN THE CHEMICAL NATURE OF THE SAMPLE AND THE COLUMN PACKING MATERIALS.

Exhibit 30. Special Bibliographic Report for author: Masselli

SEARCH REQUEST FORM
FOR
SELECTIVE IRIS BIBLIOGRAPHY
NATIONAL TRAINING CENTER
MOTD/OWPO
ENVIRONMENTAL PROTECTION AGENCY

I. Search Definition
In your own words, describe your informational requirement and indicate the purpose for which the selective bibliography is intended. Specifically, include any subjects, authors, sources of special interest.

I understand the League of Women Voters has educational materials available for many levels of people on various aspects of water quality control. What came out in 1975 on the topic of hazardous pollutants? I am preparing for a boy scout environmental project.

Subject: Hazardous Pollutants
Source: LWV

II. Search Restrictions (Optional)
Restrict this search to the following:

( ) Type(s):

(X) Categories: E

( ) Educational Level:

(X) Years: Beginning Year 1975 Through Ending Year 1975
Opt: Include undated** material: Yes X No _____

**Materials having no date are entered into IRIS with the year of entry, and '99' as the month. This approach ensures an approximate dating system for such materials.

III. Bibliography Format
Your bibliography can be listed several ways. Please indicate your preference below:

( ) ID (no secondary sort)
( ) Title (no secondary sort)
( ) 1st Author (secondary sort by date)
(X) 1st Source (secondary sort by date)
( ) Date (secondary sort by title)

SEARCH STRATEGY: SPECIAL BIBLIOGRAPHIC REPORT
SOURCE-LWV DATE-1975 SUBJECT-HAZARDOUS POLLUTANTS

LWV
ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN THE OCEAN DATE: 75-04
AUTHOR(S): LWV JOLLY C TYPE(S): PM CATEGORIES: L E
EPAW01813 COST: 0.25 P LEVEL: 1 COPYRIGHT:
SUBJECT AREAS:
INDUSTRIAL WASTES HAZARDOUS POLLUTANTS LAWS AND REGULATIONS SLUDGE DISPOSAL
REMARKS AND ABSTRACT:
PUB. NO. 571, 4PP.
EXPLAINS MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972 AND ITS ROLE IN LIMITING DUMPING OF TOXIC POLLUTANTS I
THE OCEAN. DESCRIBES PROBLEMS OF INDUSTRIAL WASTE AND MUNICIPAL SLUDGE DUMPING.

LWV
ENVIRONMENTAL UPDATE ON WATER CONTROLLING HAZARDOUS POLLUTANTS IN INLAND WATERS DATE: 75-06
AUTHOR(S): LWV JOLLY C TYPE(S): PM CATEGORIES: L E
EPAW01835 COST: 0.25 P LEVEL: 1 COPYRIGHT: C
SUBJECT AREAS:
WATER QUALITY HAZARDOUS POLLUTANTS LAWS AND REGULATIONS INDUSTRIAL WASTES
DEEP WELLS
REMARKS AND ABSTRACT:
PUB. NO. 591: 4PP.
EXPLAINS SECTIONS 307 AND 311 OF FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 AND THEIR INTENDED
ROLE IN CONTROLLING DISPOSAL OF TOXIC POLLUTANTS AND LIMITING HAZARDOUS SPILLS. DESCRIBES POTENTIAL ROLE OF
1974 SAFE DRINKING WATER ACT IN REGULATING DEEP WELL INJECTION OF WASTES.

Exhibit 31. Special Bibliographic Report on Source: LWV

IV. Please Complete the Following:

Your Name: Barbara Taylor Telephone: 801-928-4368

Mailing Address: 1287 Piton Lane

Aspen, MT 82693

*If you want a selective bibliography based on a pre-selected group of ID's, complete Sections III, IV and V.

V. Selective Bibliography based on Pre-Selected Set of ID's

If you wish to supply the specific identification numbers for the training material records to be inclusively selected for this bibliography, type the ID(s) below. Do not complete Sections I and II of page 1.

Identification numbers:

48	437	1325
49	466	1413
50	467	1512
51	472	1627
142	488	1762
225	534	1834
397	1014	
413	1033	
426	1078	

EPAW00048
AWWA STANDARD FOR FERROUS SULFATE DATE: 68-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT COAGULATION
REMARKS AND ABSTRACT:
B402-68 (NO. 42402) 12 PP.
THIS STANDARD COVERS FERROUS SULFATE, EITHER IN GRANULAR (DRY) OR IN SOLUTION (LIQUID) FORM FOR USE IN THE TREATMENT OF POTABLE AND INDUSTRIAL WATER SUPPLIES.

EPAW00049
AWWA STANDARD FOR ALUMINUM SULFATE LUMP GROUND OR LIQUID DATE: 70-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT COAGULATION
REMARKS AND ABSTRACT:
B403-70 (NO. 42403) 12 PP.
THIS STANDARD COVERS ALUMINUM SULFATE, EITHER PURIFIED OR UNPURIFIED, AND IN LUMP, GROUND, OR LIQUID FORM FOR USE IN THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

EPAW0005C
AWWA STANDARD FOR LIQUID SODIUM SILICATE DATE: 59-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT CATHODIC PROTECTION COAGULATION
REMARKS AND ABSTRACT:
B404-59 (NO. 42404) 9 PP.
THESE SPECIFICATIONS COVER SODIUM SILICATE WHICH IS USED IN THE PREPARATION OF ACTIVATED SILICA FOR THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES AND FOR THE CONTROL OF CORROSION IN WATER SYSTEMS.

EPAW00051
AWWA STANDARD FOR SODIUM ALUMINATE DATE: 60-00
AUTHOR(S): AWWA TYPE(S): PM CATEGORIES: D M S
SOURCE(S): AWWA COST: 3.00 P LEVEL: 2 COPYRIGHT: C
SUBJECT AREAS:
STANDARDS CHEMICAL TREATMENT COAGULATION
REMARKS AND ABSTRACT:
B405-60 (NO. 42405) 8 PP.
THIS STANDARD COVERS SODIUM ALUMINATE FOR USE IN THE TREATMENT OF MUNICIPAL AND INDUSTRIAL WATER SUPPLIES.

Exhibit 32. Special Bibliographic Report By ID

Entering Instructional Resources Into IRIS

DEFINITIONS

IRIS contains both the bibliographic citation and abstract data elements associated with each training material in the system. A complete definition of each data element is given in Table 3 on page 11. On page 10 is a sample IRIS record with data elements explained (Exhibit 1).

CODING INSTRUCTIONS

The following pages (70 through 75) provide step-by-step instructions for completing the *Master File Data Input Form*. General rules for completing the input form are:

- punctuation is not permitted (except in remarks and abstract)
- no lower case alphabetic characters
- abbreviations must conform to an approved standard
- symbols must conform to an approved standard.

The coding instructions support:

- ease of *Data Capture*
- correctness of data
- efficiency in use of the computer
- highly usable information reports
- efficient file access for selective bibliographic reports.

GENERAL INSTRUCTIONS

If you are a publishing source and wish to contribute information about your materials to the IRIS system, establish an unused code to represent your organization which is 10 digits or less and register this code with:

IRIS
National Training Center
MOTD/OWPO
U S Environmental Protection Agency
Cincinnati, OH 45268

When completing the data input forms, be sure to enter this code in the source block.

If you are a nonpublishing user and have found a training material you feel should be added to IRIS, first use the indexes and reports to ensure that the training material has not already been entered in IRIS. If the item is not in IRIS, use the *Source Name Table* to determine the

proper source code. If no code exists, write the full source name on the data caption form in the source block, and write the full address for the source on the back of the form.

After completing a data input form, forward it to the National Training Center (address on page 57). Be sure to enclose your name, address, and full telephone number so you can be contacted if questions arise.

INSTRUCTIONS FOR COMPLETION OF CODING SHEET

ID Number

A maximum of nine characters is allowed (e.g., EPAW00000).

EPA - Identifier for EPA
W - Water Quality Control Material
00000 - Number to be assigned by EPA to each item.

The ID number is assigned by EPA.

Copyright

Place a "C" in this block if the material is copyrighted.

Item Title

A maximum of 104 characters is allowed for the training material title. Do not abbreviate. End title, if necessary, with last significant word which meets the 104 character limit. Begin title with first significant word -- ignore "a," "an," and "the." Do not enter report number(s) as part of the title. Enter all such numbers in the remarks line. Do not punctuate; substitute a space where punctuation would appear.

Examples:

Enter *Water Quality; A Handbook* as:
Water Quality A Handbook

Enter *Water Fluoridation: Applications and Techniques* as:
Water Fluoridation Applications and Techniques

Enter *Sewage Treatment - Plant Design* as:
Sewage Treatment Plant Design

Date

Four characters (2 numeric characters for year and 2 numeric characters for month). If only year is known, enter year, then month as "00." If date is unknown, enter current year, the month as "99" (although approximate, this indicates a date range, and the "99" indicates that the date has been arbitrarily assigned). Examples follow.

Examples:

7401 = January 1974

7411 = November 1974

7400 = 1974 (month unknown)

7599 = Entered into IRIS in 1975, date unknown.

Author

Not more than two authors' names of 24 characters each are allowed. Enter last name (full name), followed by a space; followed by first initial, followed by a space; followed by middle initial, if applicable (otherwise leave middle initial blank). No punctuation.

Type

A maximum of four 2-character type descriptors with one space between each. Use the following code for type of material.

AC	Audio tape cassetts
AR	Audio tape reel
FS	35mm filmstrip
MP	Motion picture (8mm, 16mm, 35mm)
OT	Overhead transparency
PM	Printed matter
SL	35mm slide
VC	Video tape cassette
VR	Video tape reel (1/2", 1", 2")

Examples:

PM SL AC	Printed matter, 35mm slide, audio tape cassette
PM SL AC OT	Printed matter, 35mm slide, audio tape cassette, overhead transparency
SL	35mm slide
SL AC	35mm slide, tape

NOTE: Specific characteristics for motion pictures and video tape reels (e.g., width) should be noted in the remarks field.

Category

A maximum of five 1-character category descriptors with one space between each. Use the following code for category:

D Design - The material is suitable for a person involved in design of water quality control facilities. It is not related to the operation of the facility.

E Explanatory - The material is of a general nature and serves to orient a person to water quality control activities. It is not technical.

L Legal and Regulatory - The material is related to laws, standards, regulations, and criteria for water quality control activities.

M Monitoring and Surveillance - The material is related to designing and implementing water quality monitoring, surveillance, and laboratory control programs.

O Operations - The material is related to the operations of water quality control facilities. The material related to one or more of the following:

a. Normal operating procedures
b. Abnormal operating procedures
c. Preventive maintenance procedures
d. Corrective maintenance procedures

P Planning - The material is related to planning aspects of water quality control programs.

S Supervision - The material is related to supervision and management aspects of water quality control facilities, including personnel, budgets, report preparation, and plant process control decisions.

T Theory - The material is related to the scientific principles applicable to the subject matter in the water quality control field or a basic science area.

Examples:

E - explanatory
M O - monitoring and surveillance; operations
D L M O T - design; legal and regulatory; monitoring and surveillance; operations; theory

Level

Select a one 1-character descriptor from the following list:

0 Remedial - This material is written for adults. It is normally material covered in primary and secondary education programs.

1 Basic - This material is written for new entry personnel into the subject area.

2 Intermediate - This material is for personnel with some knowledge or experience in the subject area.

3 Advanced - This material is for personnel with considerable knowledge and practical experience in the subject area.

Source

A maximum of two 10-character sources is allowed. If the coding sheets received do not have this field already filled, write in the originating source (where material can be obtained) using as many characters as necessary.

Cost

First 6 characters constitute the dollar-and-cents cost, if applicable (if not, place 6 zeros here). Following this cost, leave one space and enter the appropriate 1-character indicator determining whether item is purchase (P) or rental (R).

Examples:

000150 P = $1.50, to purchase
010000 R = $100.00, for rental
185444 P = $1,854.44, to purchase
000000 P = no cost, retain material
000000 R = no cost, but must return material

Subject Area

The object of assigning subject terms to a document is to connect the user to the document. The user's point of view should be considered in the selection of each term; i.e.:

- how would the user ask for the document?
- would the user ask for the document in this fashion?
- if I were trying to find this particular document, could I find it using these terms?

The user population must be definable to the reviewer. Is the audience technically oriented, management oriented, or applications oriented? Subject term selection should be directly related to this assessment.

As a cross reference network exists for IRIS, no relational terms (synonyms) should be assigned to the same document.

Unless the audience base contains users requiring general material, as well as users requiring specific material, the more specific term is to be preferred to the broader term where relevant, and both should not be assigned to the same document. For example:

A book on personnel relations should not be given the terms "personnel relations," as well as "management." Only the more specific term should be entered.

EXCEPTION: In the event that both audiences have equal need for a document. A handbook on chemistry may be devoted to biochemistry, organic chemistry, and so on. It is of equal value to the biochemist, as well as the general audience requiring a chemistry reference book.

The descriptor chosen should describe the informational material contained within the document, not the purpose of the document. For example, an item used solely for instructional purposes should not be given the term "instruction."

The reviewer should not attempt to choose the audience; e.g., a book about energy should not be given the term "management" because the reviewer feels that management should be aware of this document.

The number of terms assigned to a document should be directly proportional to the size of the document and the level of specificity of that document. The user does not want to be burdened with documents of marginal interest. A 5-page pamphlet should not be given 16 descriptors; a 546-page, highly technical, highly specific document should not receive 16 descriptors; a handbook, manual, symposium, or basic reference book might require all 16 descriptors.

- the older a document, unless a classic, the fewer the number of descriptors.
- for very new subject areas of high interest where little information exists, more detailed subject descriptors are acceptable.

A certain category of terms fall into a "form" term specification -- words such as "dictionaries," "handbooks," "codes," "standards," "bibliographies," and so on. These terms are handled as follows:

- documents, in addition to the normal subject descriptors, are given an additional descriptor to define the form. The user benefits by having all "dictionaries" together, all "bibliographies" together, etc.

The key is to connect the user to the document. Every decision concerning term selection should revolve around this fundamental concept.

You may select up to 16 subjects from the *Thesaurus*. When selecting subjects, consider the following:

a. Select as few subjects as possible which specifically and fully describe the document.
b. While a maximum of 16 subjects is allowed, do not attempt to use all 16 unless clearly justified.
c. Select each term by considering how the user would ask for this material.
d. If no subject term adequately describes the document, suggest one for our consideration, and place an asterisk (*) after the word to alert us that this is a new term.

Remarks

There are 120 characters allowed for special comments. Specific items appearing here would cover additional physical characteristics of the document, report or identification number(s), additional authors and/or sources, and other comments. List remarks in the following order:

a. Report or other identification number.
b. Physical characteristics (number of pages, number of slides, film running time, and so on).
c. Additional authors and sources.

d. If rental item is available for purchase and where.
e. Other comments which describe bibliographic character of material.

Abstract

A maximum of five lines, 120 characters each is allowed. Do not exceed 120 characters for any given line. This should represent a concise objective description of the item. It should provide additional information not already captured via the subjects assigned. It should emphasize information not clearly specified in any other part of the record. This does not represent an area where professional evaluation is to be entered.

MASTER FILE FORMAT

As in all automated applications, IRIS has a specific *File Format* for capturing and maintaining data. In this system, up to 29 distinct bibliographic elements, plus a brief abstract, form a record on each training material of 1,440 characters.

A complete definition of each data element is given in Table 3 on page 11. On page 10 is a sample IRIS record with data elements explained (Exhibit 1).

Exhibit 33 (page 77) is the actual master file data input form with the field length followed by the start position in the record specified. For example, the data element AUTHOR ONE appears in the layout form as: AUTHOR ONE 1/24. The 1 refers to the start position in the record, and the 24 is the maximum field length.

An example of a completed Data Input Form is given in Exhibit 34 on page 78.

DATA INPUT FORM - IRIS

8/76

ID NUMBER 1/9	C 10/1	ITEM TITLE 11/104					Date 117/4	
AUTHOR ONE 1/24	AUTHOR TWO 26/24	TYPE 52/11	CATEGORIES 64/9	LVL 85/1	SOURCE 1 87/10	SOURCE 2 98/10	COST 110/8	
SUBJECT ONE 1/29	SUBJECT TWO 31/29	SUBJECT THREE 61/29	SUBJECT FOUR 91/29					
SUBJECT FIVE 1/29	SUBJECT SIX 31/29	SUBJECT SEVEN 61/29	SUBJECT EIGHT 91/29					
SUBJECT NINE 1/29	SUBJECT TEN 31/29	SUBJECT ELEVEN 61/29	SUBJECT TWELVE 91/29					
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29	SUBJECT FIFTEEN 61/29	SUBJECT SIXTEEN 91/29					
REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.) 1/120								
ABSTRACT LINE ONE 1/120								
ABSTRACT LINE TWO 1/120								
ABSTRACT LINE THREE 1/120								
ABSTRACT LINE FOUR 1/120								
ABSTRACT LINE FIVE 1/120								

Exhibit 33. Data Input Form

DATA INPUT FORM - IRIS

78
8/76

ID NUMBER 1/9	C 10/1	ITEM TITLE Water Quality Instructional Resources Information System Users Manual 11/104	Date 117/4 7600

AUTHOR ONE 1/24	AUTHOR TWO 26/24	TYPE 52/11	CATEGORIES 64/9	LVL 85/1	SOURCE 1 87/10	SOURCE 2 98/10	COST 110/8
CCCC	Clemson U	PM	DELMO	2	EPA NTC		000000 P

SUBJECT ONE 1/29 Information Systems	SUBJECT TWO 31/29 Instruction	SUBJECT THREE 61/29 Indexes and Bibliographies	SUBJECT FOUR 91/29 Water Treatment
SUBJECT FIVE 1/29 Wastewater Treatment	SUBJECT SIX 31/29	SUBJECT SEVEN 61/29	SUBJECT EIGHT 91/29
SUBJECT NINE 1/29	SUBJECT TEN 31/29	SUBJECT ELEVEN 61/29	SUBJECT TWELVE 91/29
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29	SUBJECT FIFTEEN 61/29	SUBJECT SIXTEEN 91/29

REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.) 1/120

EPA 430/1-76-003, 178pp, also categories P, S, T

ABSTRACT LINE ONE

Designed to enable instructors, developers and authors of training materials in the water and wastewater, 1/120

ABSTRACT LINE TWO

areas to learn how to locate instructional materials by subject, 1/120

ABSTRACT LINE THREE

authors, publishing/distributing source, media type, application category, 1/120

ABSTRACT LINE FOUR

or title retained in IRIS, contains study objectives, examples, 1/120

ABSTRACT LINE FIVE

and appendices (glossary, code definitions, source directories, thesaurus). 1/120

Exhibit 34. Completed Data Input Form

CORRECTING AN EXISTING IRIS RECORD

In using the IRIS products, you may find a material incorrectly entered. Typical errors might be misspelled titles, incorrect subject assignment, wrong sources and so on. To make IRIS usable, it is important that all users contribute to the correction process. This can be easily and rapidly done. Simply use a blank IRIS Data Input Form (Exhibit 33 on page 77), write the ID number for the IRIS material requiring correction, and in the appropriate box, write the necessary correction. In the example on the following page:

1. The title was misspelled.
2. Laboratory Control was an incorrect subject (upon review, the user found nothing dealing with this topic); but Microorganisms were a significant part of the training material.
3. The user recommends adding a seventh subject, Bacterial Analysis, as this topic was covered in the material.

Exhibit 36 indicates how a data input form should be filled out to show the required changes for an incorrect listing (Exhibit 35, page 80).

ExecISes about Pollution

Date: 73-00

Author(s): Sohn B I
Source(s): Milli
Cost: 0.00 P
Type(s): PM
Level: 2
Categories: M
ID Number: EPAW01619 Copyright C

Subject Areas:
Biological Analysis
Algae

Total Coliforms
Fecal Coliforms
Fecal Strep
Laboratory Control

Remarks and Abstract:
9pp. Reprint from 'Pollution' Magazine.
Describes physical, chemical, and bacterial tests to determine water pollution levels from microorganisms. Equipment photos.

Exhibit 35. Example of Incorrect Listing

DATA INPUT FORM - IRIS

ID NUMBER 1/9 EPAW01619	C 10/1	ITEM TITLE Exercises About Pollution					11/104	8/76 Date 117/4
AUTHOR ONE 1/24	AUTHOR TWO 26/24	TYPE 52/11	CATEGORIES 64/9	LVL 85/1	SOURCE 1 87/10	SOURCE 2 98/10	COST 110/8	
SUBJECT ONE 1/29	SUBJECT TWO 31/29		SUBJECT THREE 61/29		SUBJECT FOUR 91/29			
SUBJECT FIVE 1/29	SUBJECT SIX 31/29 Microorganisms		SUBJECT SEVEN 61/29 Bacterial Analysis		SUBJECT EIGHT 91/29			
SUBJECT NINE 1/29	SUBJECT TEN 31/29		SUBJECT ELEVEN 61/29		SUBJECT TWELVE 91/29			
SUBJECT THIRTEEN 1/29	SUBJECT FOURTEEN 31/29		SUBJECT FIFTEEN 61/29		SUBJECT SIXTEEN 91/29			
REMARKS (Rept. No.; No. pages; No. slides; Film mm, Color, b/w, run time; Addl. authors and sources; Misc.) 1/120								
ABSTRACT LINE ONE 1/120								
ABSTRACT LINE TWO 1/120								
ABSTRACT LINE THREE 1/120								
ABSTRACT LINE FOUR 1/120								
ABSTRACT LINE FIVE 1/120								

Exhibit 36. Data Input Form Completed for Incorrect Entry

Computer Environment

COMPUTER HARDWARE AND SOFTWARE

IRIS has been developed on a computing facility (IBM 370/158) currently servicing a large portion of EPA *Data Processing* requirements. This facility provides a nationwide *Telecommunications Network*. *WYLBUR*, a *Text Editor*, and the Inquiry and Reporting System (IRS), a report generator, are the two computer software packages supporting this application.

In general, WYLBUR is used to build and maintain the master file, and IRS is used to manipulate the data files generating the required products. Originally developed at the Stanford University Computation Center, WYLBUR provides extensive text editing capabilities through the utilization of on-line low speed *Terminals*. Generally, as WYLBUR is an *On-Line* software, a fairly large scale IBM 360/370 system is required. WYLBUR is installed on a representative number of large scale computer centers using IBM equipment and is generally considered "public domain" software. The second software, IRS, is a commercially available *Data Retrieval* and *Report Generation Software Package*. It is owned and available through Sigma Data Computing Corp. The software provides a fast, efficient, and simple technique for extracting information from computer files, performing basic data processing functions, and producing the desired form of output. IRS can be installed on virtually any model of IBM 360/370 equipment. All the computer programs are written in this *Batch* report generator software.

DATA PROCESSING APPROACH

To support the development of IRIS, the following considerations ensured a cost effective flexible information system:

- Certain standards have been applied to IRIS which have been successfully used in the implementation of other EPA information programs. These encompass master file organization, computer programming techniques, data input control, computer-generated information products, and so forth. One favorable result is that development time and costs associated with this application were substantially less than those of similar systems developed before it. Another important result is the reduction of training costs associated with the understanding of this application.
- In developing IRIS the first technical procedure was the establishment of a working system based on a small test *Data Base*. As this test procedure developed, all parties worked closely together, ensuring that the final result would meet the information requirements. The critical consideration is that the test system was developed, analyzed, modified, and completed prior to the commitment of any large resources to the effort. Following this procedure ensured that no major modifications were necessary after the test phase.

- Another important aspect of the *System Philosophy* involves the planned and effective utilization of the powerful computer hardware/software environment supporting the application. The use of all on-line capabilities is well planned and essentially used to support the "*Front End*" or data input and control portion of the system. For the most part, all informational products are batch oriented and are generated under the control of trained information staff who have a complete knowledge of all aspects of the system. Further, the design of the file layouts is kept as straightforward and direct as possible. The file has *Fixed Length Data Elements* and *Fixed Length Records* allowing all levels of programmers to easily interact with the system. The simplified *Master File Format* also supports the high degree of flexibility necessary to meet the ever-changing needs of any information activity.

- As in any computer based system, an accurate and correct data base is essential if the application is to prove successful. In achieving such a data base, the proper use of *Data Capture Forms* is crucial to the system. Generally, the greater the number of decentralized sources of input (as is the case in this application), the more rigid and defined the data capture form and procedures must be. In the IRIS system the data capture form is well structured, and complete instructions to the participating sources are provided. In addition, the data capture form is designed to closely match the actual master file format. This ensures the ease of transition from the data capture sheet to machine readable form. Routine professional review of the essential data captured via the forms, along with the continual updating of the *Thesaurus* and the source file, is essential to the viability of the data base and resultant information products.

- As all concepts in the design of this application center on providing as many users as possible with cost effective information products, the medium of distribution represents a significant consideration. In this application, all information products are available on *Computer Output Microfiche (Com)*--42X reduction--with each microfiche representing over 200 pages of information. The use of COM as a *Distribution Medium* ideally supports the situation where many copies of a structured, computer-generated information report are required to be distributed nationally or internationally. One can mail 5 microfiches (over 1,000 pages of output) for the price of a first class postage stamp. COM reports take up little space, have a useful life of many years, bypass the substantial cost of paper, and with proper education, represent a significant means of information exchange.

Each of the considerations described above has contributed to the effective design and implementation of this application. The most critical requirement necessary for the success of any information system, however, is program personnel who truly understand their subject area and their users' needs. Without their active participation, it is unlikely that any system will succeed.

Glossary

Access:
Utilization of IRIS information products in meeting a particular training materials selection requirement.

Batch:
When the computer user submits a request to be processed under a scheduled priority that the computer center staff establishes. The generation of an IRIS information product via one of the IRIS computer programs is an example of a batch activity.

Bibliographic Element:
Those data elements which specifically describe a document according to its information characteristics; e.g., the title, author, source, date, type, category, level, and subject description of a training material.

Category:
Each training material is assigned relevant application areas; e.g., operations, design, explanatory, etc., to allow instructors greater browsing ability when selecting for a particular user group such as operators. Entered as a one-character code, all codes are specifically defined in the *Code Definition Table*.

COM:
See COMPUTER OUTPUT MICROFICHE

Computer File:
The inventory of all of the information on all of the training material in a form which is readable by the computer. Synonymous with the term DATA BASE in the IRIS application.

Computer Output Microfiche (COM):
A microfiche which is produced through the use of a computer.

Computer Terminal:
See TERMINAL (COMPUTER)

Cost:
Indicates the availability of the training material in terms of the purchase or rental price, or in terms of permanent or temporary loan. The codes are specifically defined in the *Code Definition Table*.

Data Base:
In terms of IRIS, the sum total of all the information gathered on all of the training resources processed through IRIS.

Data Capture:
The activities associated with the selection and analysis of information gathered on the training material to be entered into IRIS.

Data Capture Form:
See DATA INPUT FORM

Data Elements:
The specific items of information captured on each training material (e.g., title, author, source, etc.).

Data Input:
See INPUT

Data Input Form:
The document onto which all information describing a training material (e.g., title, date, source, subject, abstract, etc.) is entered prior to being entered as data into the computer as part of the IRIS master data base.

Data Processing:
All activities related to the automation (the application of a computer) of a particular activity. Keypunching, computer programming, etc., are specific examples of data processing functions.

Data Retrieval Package:
See REPORT GENERATION PACKAGE

Design Philosophy:
In data processing, as in any field, there are several possible approaches which can be used to develop an automated activity. Within each approach there are certain fundamental steps which differentiate that approach from any other. The design philosophy represents the total fundamental steps selected from the various possible approaches to satisfy an automated requirement.

Distribution Medium:
The product form used for mass distribution of IRIS information products. For example, the *Title Master Report* is distributed as a hard copy document, while the various indexes (e.g., source, author, type, etc.) are available on microfiche.

Education Level:
See LEVEL (EDUCATION)

File Format:
See MASTER FILE FORMAT

File Layouts:
The specific format used to gather the information on each training material. This layout is acceptable to the computer for processing and is the basis on which all information products are produced.

Fixed Length Data Element:

A data element which has a specific number of maximum characters. In the event that a particular data element does not fit the maximum number of characters alloted, spaces or zeros complete the field. For example, in IRIS, 29 characters are allowed for each subject. If the subject term SLUDGE TREATMENT is used, only 16 characters are entered, and the remaining 13 are left blank.

Fixed Length Record:

The unit that defines to the computer one training material. Each record contains a specific set of fixed length data elements defining that training material. The total number of characters defining each training material is the same.

Front End:

Includes those activities necessary to gather, evaluate, and enter the information associated with each of the training materials.

Hardware (Computer):

The hardware is the physical components that make up a computer facility. Such components normally include a memory unit known as the central processing unit (cpu), where all processing takes place, and the peripheral devices to the cpu such as the card reader, tape devices, etc., which support data exchange and storage requirements.

ID Number:

Each training material receives a unique 9-character identification number. The alpha portion "EPAW" indicates that the number has been assigned through the Water Quality Program of EPA. The number is a unique 5-digit number. The purpose of the identification number is to allow the IRIS user to easily reference the *Identification Number Master Report* after consulting the various indexes.

Index:

The information products which act as pointers back to the master report products (i.e., the title and ID reports). The indexes are used when one does not know the specific title or identification number of a training material. For example, if material under the term SLUDGE TREATMENT is desired, the *Subject Index* would be reviewed to identify the ID's or titles of pertinent training materials. With this information the user can proceed to the *ID* or *Title Master Report* to review the more complete record describing the training material.

Information Center:

An organization (containing one or more persons) with a comprehensive knowledge of a particular body of information.

Information Products:

The master reports (e.g., *Title*), indexes (e.g., *Author, Subject*), and tables (e.g., *Thesaurus*) produced through IRIS.